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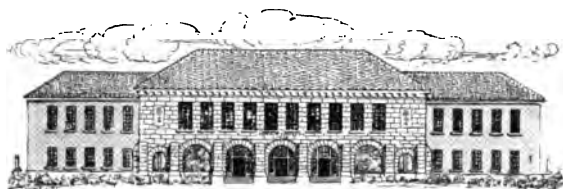


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College Achievement and Vocational Efficiency

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B. L. G.

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INTRODUCTION

The study presented in this monograph is an attempt to discover the relation between the vocational efficiency of college graduates as measured by income twelve and a half years after graduation and undergraduate achievement as measured (1) by scholarship and (2) by extra-curricular activity and success.

It was the writer's original purpose to include as a part of this investigation a measurement of the relation of certain other factors to income: (1) time of choosing the vocation; (2) reasons for entering the first occupation after graduation; (3) change in occupation and reasons for change; (4) self-support while in college; (5) amount and kind of professional study after graduation; (6) time of marriage and size of family. Because of insuperable obstacles inherent in the nature of the available, data this phase of the investigation had to be abandoned.

The data gathered with reference to time of choosing the life career reasons for entering the initial occupation and reasons for change are presented in Chapter V in an attempt to measure the influence of the college upon the determination of the life careers of its graduates. The facts in regard to self-support, graduate study, and marriage have been summarized in Chapter VI mainly for the interest which attaches to the occupational variations which the statistics reveal. No attempt is made to measure the relation of these factors to vocational success.

The initiation of the investigation was prompted by the hope of contributing in some small measure to the factual basis of the movement for the more effective educational and vocational guidance of college students. It is the writer's hope that the study may also serve to focus attention upon a number of other problems of college administration. These problems include (1) ways and means of increasing student respect for scholarship; (2) more effective methods of measuring the raw material which the college matriculates and the finished product which it graduates; (3) ways and means of utilizing more effectively the educational possibilities of extra-curricular activities; (4) the urgency of a re-examination of the aims and function of the American liberal arts college.

COLLEGE ACHIEVEMENT AND VOCATIONAL EFFICIENCY

CHAPTER I

THE RELATIONSHIP BETWEEN COLLEGE RANK AND SUCCESS IN LIFE. THE PROBLEM DEFINED

Aside from the sheer interest of the question, it is a matter of no slight importance to know whether or not the attainment of high grades in college is prophetic of equally great achievement in life. If college is a preparation for life, the student who is most successful in measuring up to its standards should, in the long run, be the most successful in meeting the tests of life. This thesis has been generally accepted by college officials, who have been greatly interested in proving that a positive and close relationship does exist between undergraduate standing and success after graduation. Indeed, the measurement of the relationship in question is the one scientific way of testing the results of college education.

The worth of the measurement will depend, of course, upon the validity of the measures applied and on the appropriateness of the method used. Care must be taken, also, in interpreting the results of such measurements and in drawing conclusions therefrom. For example, the establishing of a positive relationship will not prove, necessarily, as has sometimes been assumed, that the graduate's success was produced by the studies in which, as an undergraduate, he achieved distinction, and that the college curriculum has, therefore, been acquitted of the indictment of impracticality and aloofness from the real needs of life. Nor would it prove that distinguished alumni had achieved their success because of the hard study which won the high grades in college.¹ To the writer it would seem safe to assume from a close, positive relationship between the facts in question, little more than this: that the methods of selection used by the college had succeeded in discovering and distinguishing those individuals who possessed the qualities which would finally operate to distinguish them among their fellows after graduation—that the criteria of college and those of life were identical. This identity, or lack of identity, of measures between college and life outside of college is in itself worthy of test, however.

¹ Note the implication in the title of Foster's article in *Harper's Magazine*, Sept. 1916, "Should Students Study?"

On the other hand, a failure to establish positive relationship between the factors in question would admit of several possible interpretations.¹

In the first place it might indicate that the qualities essential to success in college, as now measured, were not the same as those essential to success in life. This conclusion, however, would not necessarily follow. It might easily be true that the lack of relationship was due to a failure on the part of the college to make the course of study appear to the student as worthy of the effort, the result of which would really test his ability to succeed. In other words it might mean that the course of study was either unrelated to life in any vital way, or that it was so presented that this relationship was not clear to the student and hence, for him at least, did not exist. Until this latter possibility was disposed of, indeed, it would be unsafe to assume the correctness of the first interpretation mentioned above. Still another possible explanation of lack of relationship would have to be considered. It may easily be true that the abilities tested by success in the college curriculum are the same abilities required for success in *some occupations* and quite different from those required for success in other occupations. By massing the data for all occupations such relationship as exists may be obscured. In order to test this last interpretation, therefore, it would be necessary to analyze the result of our measurement if it were negative by testing separately the relationship in question for graduates in different occupations.

Apart from its obvious value as a check upon the results of college education, a knowledge of what relationship actually exists between college achievement and life achievement could be utilized in a number of important ways. For example, if college authorities could prove to students that the high stand man has a very much better chance of success in life than has the low stand man—if they could prove this on the basis of facts rather than offer it as a professional faith—if the success achieved in life is of a kind to stir the ambition and emulation of undergraduates, knowledge of this relationship might be expected to increase student respect for high rank as a goal worthy of attainment and hence of effort. At present it is a well authenticated fact that undergraduates do not so regard high academic rank in spite of the fact that the college has marked it with the stamp of highest approval. The desire for approval is a powerful incentive to human endeavor, but it is the approval of one's peers that counts, and this is

¹ Granted always that the measure used is a valid one, and the method of its application is sound.

especially true in the case of the adolescent. Whether it be true or false, so long as the tradition holds that college life is the thing and that college studies do not count, high scholastic honors will be an incentive of very limited appeal. In any case the attainment of the mark itself is not, of course, the goal to stress. But if success in the college course is prophetic of life success, then it is desirable that the honors attached to scholastic achievement be valued by the student as are the equivalent honors in life outside of college. If, however, there is no very close relationship between the factors in question, or if the relationship holds only for certain occupations or when certain measures of success are applied, college authorities should be clear as to the facts when they attempt to use the "success motive" as an aid to winning student respect for scholarship.

The men who employ college graduates, and those who are charged with the responsibility of recommending college graduates for positions need to know the extent to which a student's marks are prophetic of his later achievement. School superintendents, as well as business men, tend very strongly to discount marks as a basis of selecting men and women for positions. Are they right or wrong? If they are right, the college needs to recognize this fact and to give grave thought to its significance. If they are wrong the college officers charged with the placement of graduates should in fairness to the high grade students try to convince the employing public of its error. This employing public can not be convinced by a reiteration of the beliefs of college officers. These men demand proofs, and if the evidence offered is to have weight with them the measures used for testing success must be measures which appeal to them as valid.

A number of studies of the relation between success in college and success in life have been made. These studies will be reviewed in Chapter II, as a preliminary to the presentation in Chapters III and IV of the writer's investigation of this question by the application of somewhat different tests of success and the use of a different method of measurement.

CHAPTER II

PREVIOUS STUDIES OF SUCCESS IN COLLEGE IN RELATION TO SUCCESS IN LIFE

Dexter's study of "High Grade Men in College and Out"¹ is "an attempt to follow the subsequent careers of high grade men in order to determine their valuation by the world at large . . . The high grade man in college has realized most nearly the ideals of his Alma Mater . . . if he fails in life it means that judged by another criterion—that of society in the broadest sense—he is not a success: that the two criteria are different, based upon different ideals, and as a corollary, since life is the final test, that the college ideal is not a practical one and that the aim of higher academic education is false."

The study includes the living graduates of twenty-two typical American colleges which have had a chapter of Phi Beta Kappa for at least twenty years previous to 1900. In the first part of the study membership in this honorary Greek letter society, which includes from 8 per cent to 33 per cent of the highest scholars graduating in any year, was used as the criterion of success in college. Mention in *Who's Who* was the test of success in life.

The first method of comparison used was to determine the percentage of Phi Beta Kappa men whose names were included in *Who's Who*, then the number of graduates regardless of rank who attained this distinction. The result of the comparison in terms of percentages is given in Table I.

The table shows for each college and for the group as a whole the number of living Phi Beta Kappa graduates; the number of Phi Beta Kappa graduates in *Who's Who*; the percentage of Phi Beta Kappa's in *Who's Who*; the percentage of living graduates in *Who's Who*; the percentage elected to Phi Beta Kappa each year (weighted in terms of the number of living graduates); the percentage of *Who's Who* men, graduates of these colleges, who were elected to Phi Beta Kappa.

In interpreting this table Dexter says, "In the two columns *d* and *e*, we have the basis of what seems to me an important comparison, the first representing the percentages of high grade men who were successful

¹*Popular Science Monthly*, 62:424.

TABLE I

COMPARISON OF PHI BETA KAPPA GRADUATES AND RANK AND FILE GRADUATES
OF TWENTY-TWO COLLEGES AS TO *Who's Who* SUCCESS
[DEXTER]

Colleges	Living P. B. K. Grads.	P. B. K. Grads. in <i>Who's Who</i>	% P. B. K. Grads. <i>Who's Who</i>	% Liv- ing Grads. <i>Who's Who</i>	% Elect- ed to P. B. K. ¹	% <i>Who's Who</i> Elected to P. B. K.
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>
Amherst.....	630	29	4.6	2.6	20	40.3
Bowdoin.....	358	36	10.0	2.2	25	59.8
Brown.....	658	22	3.3	1.8	25	52.4
Colgate.....	184	4	2.1	1.7	25	57.0
Columbia.....	310	21	6.7	.8	20	39.6
Cornell.....	212	11	5.2	1.6	12	30.0
Dartmouth.....	650	38	5.8	2.4	16	45.2
Hamilton.....	366	9	2.4	3.0	-----	45.0
Harvard.....	1110	139	12.5	2.7	8	40.8
Hobart.....	135	2	1.5	2.6	25	40.0
Kenyon.....	140	3	2.1	3.6	-----	33.0
Marietta.....	175	1	.6	1.1	33	33.0
Middlebury.....	135	3	2.3	3.3	33	30.0
N. Y. City College.....	185	2	1.1	.8	12	10.0
N. Y. University.....	190	6	3.1	.4	-----	42.0
Rutgers.....	285	5	1.7	1.6	25	83.0
Trinity.....	225	12	5.3	4.1	33	40.0
Union.....	360	23	6.4	3.0	25	34.3
Wesleyan.....	375	21	5.6	3.4	25	47.7
Western Reserve.....	140	5	3.6	.4	-----	45.5
Williams.....	435	33	7.6	2.8	20	54.1
Yale.....	864	56	6.5	2.3	12	24.5
Total	8122	481	Av. 5.9	Av. 2.1	Av. 15.7	39.3

¹ Weighted in terms of number of living graduates (1432).

in life according to our criterion, and the second the percentage of good, bad and indifferent college men who achieved success in terms of the same criterion. The averages at the bottom of these columns are very expressive—5.9 per cent for the former to 2.1 for the latter. If we are to accept these figures our conclusion must be that the Phi Beta Kappa man's chances of success are nearly three times those of his classmates as a whole,¹ that the upper stratum of college life is the upper stratum

¹ Jastrow points out (*Educational Review*, 31:25, "Distribution of Distinction in American Colleges") that Dexter's figures as to total number of living alumni are grossly inaccurate. The figures were taken from the *New York World's Almanac*. They were corrected by Jastrow from actual alumni lists of the colleges in question. Dexter finds that 2.8 times as many Phi Beta Kappa men as alumni in general are found in *Who's Who*. Jastrow's correction reduces the figure to 1.55.

still when put to the test, and to borrow still further from the nomenclature of the geologist, the cataclysm of graduation does not produce a subversion of strata."

As a second measure of attainment in college Dexter secured the exact class standing of the graduates of two of the larger New England colleges. Inclusion in *Who's Who* was again used as the measure of life success. These data not only make it possible to determine the percentage of high grade men included in *Who's Who*, but also enable us to see the distribution of *Who's Who* distinction through the lower scholarship ranks of the class. The results are shown in Table II.

TABLE II
COMPARISON OF THE DISTRIBUTION OF *Who's Who* DISTINCTION THROUGH
SUCCESSIVE SCHOLARSHIP RANKS OF THE CLASS
[DEXTER]

Divisions of the Class	Percentages in <i>Who's Who</i>
First 10th of Class.....	5.4
Second 10th of Class.....	2.9
Third 10th of Class.....	2.5
Fourth 10th of Class.....	1.8
Fifth 10th of Class.....	1.8
Last Half of Class.....	1.9
Rank and File.....	2.2

Again the results are impressive, the 1st 10th of the class having to its credit nearly two and one half times as many *Who's Who* men as the rank and file of the group. The percentage of distinction decreases, too, as we pass downward through the deciles until we reach the fourth 10th. After that, however, there is no decrease. In fact, the lowest half of the class furnishes a slightly larger percentage of *Who's Who* men than do the two deciles just above the middle point in scholarship for the class. Professor Dexter states that this irregularity with reference to the percentage of *Who's Who* men in the lower half is even more pronounced for those who graduated practically at the foot of the class. He states that his figures for these men are not sufficiently accurate to form the basis of percentages for these tenths considered separately. Professor Dexter is at a loss for an adequate explanation of the situation here revealed. "I know of no way to account for this," he says, "unless it be that those students who were able to keep a foothold among their classmates only with the greatest difficulty gave up all hope of success in those pursuits ordinarily chosen by college graduates, following others for which they were fitted by nature rather than by training, but in

which competition would be with a weaker class, while those who made a moderate success of college work continued in a losing competition with their classmates." It would be interesting and probably illuminating to know the occupational distribution of each tenth of the group. Unfortunately this distribution is not available.

Foster, in a study of the "Relation Between College Studies and Success in Life," made in 1910, uses the class of 1894 of Harvard College for his subjects.¹ He rejects membership in *Who's Who* as a measure of life success because it unduly weights certain occupations and because "there is a kind of life which does not express itself in offices or publications or advertised philanthropy which, nevertheless, the best men of our colleges would be glad to promote, if possible, by the administration of the curriculum." For this measure he substitutes the judgment of three men: LeBaron R. Briggs, dean of Harvard College when these men were undergraduates, Edgar H. Wells, secretary of the Harvard Alumni Association, and Frederick E. Farrington, associate professor of educational administration at Teachers College, and a member of the class in question. There was no attempt by the investigator either to define success or to specify methods or standards for measuring it. Presumably each judge made his own definition of success. He was simply asked to "choose those men who had achieved the kind of success which he would be glad to have Harvard College promote, if possible, by the administration of its curriculum. The only qualification was that men whose careers appeared to be greatly aided by social position or hereditary wealth should not be included in the successful group." Twenty-three men were marked successful by two of the three judges. The report does not offer any facts as to the deviations in the judgments of the three.

The exact academic records of these twenty-three "successful" men were copied, and the number of A's, B's, C's, etc., was used as the measure of scholastic success. As a check group twenty-three men were selected at random, the membership being constituted by taking every fifth name in alphabetical order from the lists of living members of the class of 1894. The exact academic records of these twenty-three men were also copied. The comparative results are given in Table III.

It will be seen that the "successful" group received about three and one-half times as many higher grades as the group chosen at random. Foster concludes that "contrary to the popular notion, success in college as indicated by marks attained in college courses *does* give promise of success in later life."

¹ Foster: *Administration of the College Curriculum*, p. 212.

TABLE III

COMPARISON OF THE SCHOLARSHIP OF 23 SUCCESSFUL MEN AND 23 MEN SELECTED AT RANDOM, SHOWING RELATIVE RANK IN ALL COURSES OF THE TWO GROUPS
[FOSTER]

Group A "Successful" Men		Group B Random Selection	
A.....	196	A.....	56
B.....	180	B.....	183
C.....	156	C.....	247
D.....	33	D.....	75
E.....	11	E.....	16
Absent.....	8	Absent.....	8
No Returns.....		No Returns.....	1
Total.....	584	Total.....	586

Nicholson made a study of "Success in College and After Life"¹ based upon the high grade men of Wesleyan University. The purpose of the study was to disprove the assertion so often made that the high scholar seldom achieves success in life. As to the definition of success he says, "For the purposes of this investigation, success is to be understood in the sense in which the world generally uses it, too often synonymous with income. For the purpose of this study is to disprove the assertions that the high scholar seldom achieves success in life, and those who are fond of making such statements have always in mind the practical and not the ideal—the success of position and income." As a measure of this success in life he selected mention in *Who's Who* or such accomplishment as would justify such mention. Achievement of scholastic honor was the criterion of college success. The 16,067 graduates, living and dead, were arranged in three groups. The first group comprised the oldest graduates, from 1833 to 1859, most of whom were no longer living. Since *Who's Who* is too recent a publication to include men from these classes,² Nicholson, assisted by certain of his colleagues, selected those whom he judged to be of *Who's Who* rank, making use of the data as to their careers found in the *Alumni Record*. A second group included the classes from 1860–1889. The measure of their achievement was actual mention in *Who's Who*. The third group consisted of the members of ten recent classes, those of 1890–1899. Since the youngest

¹ *School and Society*, Aug. 14, 1915.

² The first edition appeared in 1900.

of these classes had been out of college only fifteen years, the *Who's Who* record was supplemented by the judgment of contemporaries, three men from each class being asked to pick out the most successful men in their respective classes. As to scholastic record, each of these groups was divided into three sections: (1) honor men (the valedictorians and salutatorians until 1873, then by a new system of honors, from 1 to 7 in a class; from 1874 to 1906, the average was a little over three to a class); (2) Phi Beta Kappa men (the top third until 1893, after that the upper fourth of a class); (3) plain degree men. The

TABLE IV

COMPARISON OF VARIOUS DEGREES OF SCHOLASTIC HONORS WITH WHO'S WHO
DISTINCTION
[NICHOLSON]

Group I: 643 Men Classes 1833-1859		Per Cent Judged by Faculty to be of <i>Who's Who</i> Rank
Honor Men	53	50
P. B. K.	167	31
Plain Degree	476	6
Group II: 604 Men Classes 1860-1889		Per Cent Found in 1914-15 Edition of <i>Who's Who</i>
Honor Men	59	48
P. B. K.	185	31
Plain Degree	419	10
Group III Classes 1890-1899		Per Cent in <i>Who's Who</i> or Judged by Classmates as About to be There
Honor Men	28	50
P. B. K.	109	30
Plain Degree	311	11
Total 1667 Alumni		Per Cent of <i>Who's Who</i> Rank
Honor Men	140	50
P. B. K.	461	31
Plain Degree	1206	9

comparison of these three degrees of scholastic attainment with reference to achievement of success in life as measured by *Who's Who* distinction is presented in Table IV. The arrangement is essentially that used by Hollingworth.¹

On the basis of these statistics he concludes that "we are justified in assuming, that, for this college at least, the chances of distinction for a high honor graduate, one of the two or three leading scholars of the class, are just even. That one out of three of those elected to Phi Beta Kappa is likely to achieve pronounced success in life; and that each of the remaining members in the class has less than one chance in ten of becoming famous."

In the *Harvard Graduate Magazine* for March, 1916,² Knapp reports an interesting study based upon the latest Harvard Quinquennial, in which is recorded the rank attained by certain high grade students. His study covers the Harvard graduates from 1851-1900 who were living in 1915. He considers only high grade men, but compares the attainment of various degrees of success in college among this high grade group, with the chances of attaining success in life as measured by mention in *Who's Who*. His report may be summarized as follows:

TABLE V
COMPARISON OF DIFFERENT DEGREES OF SCHOLASTIC DISTINCTION WITH
REFERENCE TO PERCENTAGE GAINING *Who's Who* MENTION
[KNAPP]

	Living Graduates 1851-1900	No. Mentioned in <i>Who's Who</i>	Per Cent Mentioned in <i>Who's Who</i>
First Scholars.....	30	22	73.3
First 10 Scholars.....	308	138	42.5
Summa cum Laude.....	221	94	41.5
Magna cum Laude.....	865	173	20.
Cum Laude.....	1461	251	17.2
Totals	8683	1305	15.

He concludes, "These figures indicate that rank in college seems to have a relation to success in later life, the percentage of success being in direct relation to such rank, and that the marking systems and examinations really show something of the merits of the man and his chances in the future—a thing which we certainly doubted as undergraduates and concerning which some of us have been skeptical in later life." One other fact is noted by this investigator. Each successive decade of

¹ *Vocational Psychology*, p. 194.

² "The Man Who Led His Class in College—and Others."

the half century shows a smaller percentage of men who have attained *Who's Who* success. This he thinks is due to the fact that the younger graduates have not yet worked out their salvation and fully demonstrated their worth.

Kunkel's "Standing of Undergraduates and Alumni"¹ is based upon a study of the classes of 1876-1905, inclusive, of Lafayette College. Judgment of classmates is used as the criterion of high standing of alumni. Scholarship rank within one's class when the class is divided into tenths or fifths, is the measure of undergraduate standing. Letters were sent to ten men from each class, asking them to select the five most successful men in their respective classes. Each judge was left to define success in his own way, the only limitation being that men who had inherited wealth or position and had done nothing with it should be excluded. Three hundred letters were sent out, and 171 replies were received, but of this number only 123 gave the names of five successful classmates. A number showed hesitancy in making the selection because they were out of touch with their classmates, or felt themselves incapable of judging, while a few had scruples against a supposed injustice to many worthy men who had not become wealthy or conspicuous. Thirty names of non-graduates were sent, though the letters had asked for graduates only, and some of the men included had incomplete records. The final group of successful men studied included 301 names, one-fifth thus being rated as most successful out of a total of 1,593 alumni. In the tables following, the results of the comparison between highest of undergraduates and alumni are summarized.

The tables show that the first tenth or the first fifth of the class in scholastic rank is more likely to be judged successful than are the successive tenths or the fifths below the first, but that among the lower ranks the percentages judged successful fluctuate, with a decided tendency to increase in the lowest fifth of the class.

In respect to this last tendency, Kunkel says, "The frequency with which successful men are found in the last fifth of the class—seems to afford some slight basis for the tradition . . . that the low-stand men in college rank high in life. I suspect, however, that this excess of men in the lowest fifth of the class is due to the more or less unconscious defenders of the low-stand men. At least one alumnus in reply to the letter stated in so many words that he had called successful one man who had done poorly in college because he had so far surpassed the promise of his college record."

¹ *School and Society*, May 12, 1917.

TABLE VI

PERCENTAGE OF "SUCCESSFUL" MEN IN SUCCESSIVE TENTHS OF CLASS, RANK
IN CLASS BEING REDUCED TO PERCENTAGE BASIS
[KUNKEL]

Basis of Success Judgment	No. of Men	Tenths of Class									
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
One or More Classmates	301	20.5	11.2	9.0	11.2	9.3	10.2	7.0	7.3	7.3	7.0
Two or More Classmates	150	26.0	10.4	12.0	10.0	8.0	8.0	5.3	3.3	7.3	9.3
All or All but One Classmate	89	21.2	11.2	11.2	9.9	6.2	9.0	5.6	3.4	11.2	9.9

TABLE VII

PERCENTAGE OF "SUCCESSFUL" MEN IN SUCCESSIVE FIFTHS OF CLASS, RANK
IN CLASS BEING REDUCED TO PERCENTAGE BASIS
[KUNKEL]

Basis of Success Judgment	No. of Men	Fifths of Class				
		1st	2nd	3rd	4th	5th
One or More Classmates	301	31.7	20.2	19.5	14.3	14.3
Two or More Classmates	150	36.4	22.0	16.0	8.6	16.6
All or All but One Classmate	89	32.4	21.1	15.2	9.0	21.1

As a further means of throwing light on this inconsistency in the results, Kunkel made an analysis of the "successful" group which to the mind of the present writer is very important. The group was first analyzed as to the occupation of its members, and then the scholastic distribution of each occupational group was determined. As to occupation the group was distributed as follows: lawyers, 65; teachers, 55; business men, 50; engineers, 42; ministers, 40; physicians, 29; journalists, 11; scientific workers, 10.

The scholarship distribution is given for teachers and business men only in Table VIII.

TABLE VIII

PERCENTAGE OF TEACHERS AND BUSINESS MEN IN SUCCESSIVE FIFTHS OF THE
CLASS ACCORDING TO SCHOLARSHIP
[KUNKEL]

Group	1st	2nd	3rd	4th	5th
Teaching.....	62	20	5.5	9.1	3.6
Business.....	16	18	22.0	22.0	22.0

The distribution of successful teachers, he says, conforms most closely to expectations; that is, that the numbers of successful men will decrease as one passes from the head to the foot of the class. The business group, on the other hand, "formed the only group in which there appeared to be an inverse ratio between class stand and alumni success . . . This group affords the only basis for the belief which has been mentioned." He expresses the belief that "the large number of men at the foot of the class who go into business do so because they recognize that the learned professions are closed to them largely because of their scholarship failure." This, he believes, is one explanation for the large percentage of low-stand men who prove successful in business. As a further explanation, he suggests that success in business depends somewhat upon geniality and affability, which he believes lead all too frequently to the undoing of a student's college career.

He concludes that, "While a high stand does not carry with it any sound guarantee of success in after life, on the average, it is wise to attain that rank. Except in a business career, the poor students apparently have a generally smaller chance of success than the leaders in the classroom."

"College Grades and Success in Life"¹ is the topic of a report by Louis Bevier based upon a study of 44 classes of Rutgers College graduated between 1862 and 1905, covering in all 1326 graduates. The test of success used is the judgment of four men, "who have the most intimate knowledge of the body of alumni and no detailed knowledge of their undergraduate scholarship standards." Each of these four men was asked to pick from the entire alumni body about 30 men, who had in their judgment achieved real eminence, and a second group of from 250 to 300 men, roughly one-fifth of the entire number, who had

¹ *Educational Review*, Nov. 1917.

been highly successful. This gives two lists representing two degrees of success. Class rank is used as the measure of college success. The first comparison made is of the percentages of first honor, second honor, and third honor men found in the groups of eminence and of high success, respectively. The percentage is found by dividing the total number of men who form the group by the number from this group who found a place in the list. The letters *A, B, C, D*, in the tables below designate the lists of each of the four judges. *ABCD*¹ refers to a composite list made up of all names mentioned by two or more of the judges. *ABCD*² is a composite list including all names mentioned in any list. Tables IX and X present the first comparison.

TABLES IX AND X

COMPARISON OF PERCENTAGE OF HONOR MEN FOUND IN GROUPS OF EMINENT
AND SUCCESSFUL MEN RESPECTIVELY
[BEVIER]

EMINENT MEN

	A 32	B 33	C 32	D 28	ABCD ¹ 36	ABCD ² 54
First Honor....	20.5	25.0	18.2	22.7	25.0	27.3
Second Honor...	9.1	9.1	4.6	6.8	11.4	13.6
Third Honor...	4.5	4.5	6.8	2.3	4.3	6.8

SUCCESSFUL MEN

	A 306	B 286	C 266	D 303	ABCD ¹ 316	ABCD ² 480
First Honor....	52.3	52.3	54.5	52.3	52.3	65.9
Second Honor...	47.7	40.9	40.9	40.9	47.7	59.0
Third Honor...	27.3	18.2	20.5	27.3	25.0	40.9

The percentages in these tables show that more than one-fifth of the men who graduated with first honors are found among the small number of men who are rated as eminent, and more than half among those who are rated as highly successful. The second honor men seem to stand only a little more than half as good a chance for attaining eminence as the first honor men. Their relative chances for "life success" are a little better, 48 per cent (approximately) of the second honor men attaining this rating as compared with 52 per cent of the first honor men so rated. The third honor men seem to have a still smaller chance for either eminence or high success.

Several other tables are presented. The next pair show the percentage of eminent men and the percentage of successful men in the first sixth, fifth, fourth and third of the class ranked according to scholarship. Giving the comparison for the composite group *ABCD*¹ only, the results are:

TABLE XI

PERCENTAGE OF EMINENT MEN AND SUCCESSFUL MEN (*ABCD*¹ GROUP ONLY)
IN FIRST SIXTH, FIFTH, FOURTH AND THIRD OF CLASS RANKED
ACCORDING TO SCHOLARSHIP
[BEVIER]

	Eminent Men	Successful Men
First 6th	7.7	35.3
First 5th	6.8	35.4
First 4th	6.0	34.3
First 3rd	5.4	32.1

This indicates that at the top of the class in scholarship, the smaller the division considered, the larger the percentage of eminent men it contains. The same tendency holds for the "successful" group, but the size of the increase with the narrowing of the section is much smaller in amount.

The next comparison considers the relative number of eminent and successful men found in each fourth or third of the class as a whole. In the table that follows, this distribution is shown for the 4ths of the class, using again only the percentages for the composite group *ABCD*¹.

TABLE XII

PERCENTAGE OF EMINENT AND SUCCESSFUL MEN FOUND IN EACH FOURTH AND
THIRD OF CLASS AS A WHOLE
[BEVIER]

	Eminent Men	Successful Men
First 4th	6.0	34.3
Second 4th	3.0	24.7
Third 4th	1.5	20.5
Fourth 4th	0.3	15.4

Again the figures are consistent, the percentages regularly decreasing from the first to the fourth quarter of the class, the decrease being more rapid in the small lists of eminent men and less marked in the larger lists of highly successful men.

These comparisons seem to justify Bevier's conclusion that "undergraduate scholarship has a very important relation to future success,

not necessarily in regard to an individual, but unmistakably when the whole membership of classes is considered."

While the investigation reported in this monograph is concerned with the relation between the undergraduate academic success of the *baccalaureate* graduate and his later vocational achievement, it seems worth while as a matter of interest to review briefly the available studies of the relation between scholastic success in the professional school and later professional success.

Dr. D. E. Rice, of Pratt Institute, made a comparison between the marks achieved in courses in Mechanical Engineering and Electrical Engineering and the salaries the men were receiving four to six years after graduation.¹ The men were ranked (1) on the basis of marks received in the eight subjects studied and (2) on the basis of the salaries they were receiving at the time the investigation was made. Correlations were made for each class separately in order to make the salaries comparable. The following table shows the coefficients of correlation calculated by two methods.

TABLE XIII
SHOWING THE CORRELATION BETWEEN SCHOOL STANDING AND SALARIES
EARNED IN LATER LIFE
[RICE]

Class and Year	Cases	Correlation by Pearson Method		Correlation by Per Cent of Unlike Signed Pairs	
		<i>r</i>	P. E.	<i>r</i>	P. E.
Mechanical.....'07	35	.36	.08	.22	.09
Mechanical.....'08	41	.25	.09	.34	.08
Mechanical.....'09	39	.21	.09	.06	.10
Electrical.....'07	26	.16	.13	.25	.12
Electrical.....'08	36	.46	.08	.51	.08
Electrical.....'09	41	.16	.10	.28	.09
Averages.....		.267		.277	

The coefficients here presented are all positive but small in size denoting a general but not marked tendency toward agreement between the degree of success achieved in the technical school course, and the relative financial rewards in salary four to six years after graduation.

¹ Reported by Hollingworth, *Vocational Psychology*, pp. 195-99. It should be noted that these courses are not really engineering courses. They offer, according to Rice (*Scientific American*, Aug. 9, 1913), technical and practical training intended to prepare young men for positions of responsibility above the grade of skilled mechanic in mechanical, electrical and chemical manufacturing and industrial plants.

Dr. George E. Payne,¹ president of Harris Teachers College, St. Louis, made a study of the relation between the scholastic records in professional subjects of graduates of the college and ratings given them by principals in the public schools. The teachers were rated for management of children, instruction and attention to details. Markings were given on the service as temporary substitutes, permanent substitutes, and appointed teachers. Table XIV shows for appointed teachers the percentage of excellent, good, medium and unsatisfactory ratings given for each third of the class from highest to lowest. Half of the group had taught one term and the other half two terms.

TABLE XIV

PERCENTAGE OF GRADES GIVEN BY PRINCIPALS TO GRADUATES OF HARRIS
TEACHERS COLLEGE IN THEIR FIRST YEAR OF TEACHING
[PAYNE]

	Management				Instruction				Attention to Details			
	E	G	M	U	E	G	M	U	E	G	M	U
Highest Third...	39.1	46.7	12.0	2.2	39.9	50.2	9.5	.4	69.8	28.2	2.0	.0
Middle Third...	40.5	58.1	1.4	0.0	27.0	71.6	1.4	.0	79.9	17.6	3.5	.0
Lowest Third...	39.5	57.9	2.6	0.0	17.1	80.3	2.6	.0	78.6	20.0	1.4	.0

E—Excellent G—Good M—Medium U—Unsatisfactory

Payne concludes that there is a decided relationship between success in the professional school and success in teaching. He notes, however, the more marked relation between success in instruction and scholarship than between the latter and either the management of children or attention to details. He explains this as due in part to the fact that there is no instruction given by the college in those subjects and in part to the fact that the young teacher faced with numerous unfamiliar situations, naturally stresses the thing she can do best, and that is instruction.

Professor Raymond Walters, of Lehigh University, reports a recent study of the scholastic standing upon graduation of 392 eminent engineers.² The study was made through the cooperation of the registrars of seventy-five colleges, technical schools and universities. The bases of eminence rating were (a) holding of office or (b) membership in standing committees or (c) service as representative of the four "founder" engineer societies during the years 1915-1919. The societies were, The American Society of Civil Engineers, The American Society of Mechani-

¹ "Scholarship and Success in Teaching," *Journal of Educational Psychology*, April, 1918.

² "The Scholastic Training of Eminent American Engineers," *School and Society*, March 12, 1921.

cal Engineers, The American Institute of Electrical Engineers, and The American Institute of Mining and Metallurgical Engineers. The bases used tend to emphasize scientific and ethical aspects, as the officials and representatives are chosen for outstanding worth.

By comparing the percentages of these eminent engineers in fifths of their respective classes upon graduation, it was shown that (1) nearly one-half of them were in the highest fifth of their class; (2) nearly three-fourths were in the highest two-fifths of their college classes; only one out of twenty-five was in the lowest fifth of his class scholastically.

CHAPTER III

COLLEGE MARKS AS RELATED TO INCOME TWELVE YEARS AFTER GRADUATION

The investigation reported in this chapter uses as a test of vocational success, income twelve years after graduation. As a test of academic achievement it uses the complete academic record of each individual included in the study. It is based upon a single class, 1903, men and women, academic graduates of eleven colleges. The method used is that statistically known as correlation. The data were gathered in the fall and winter of 1915-16, before the World War had begun to influence to any appreciable degree the vocational status of the men and women who are the subjects.

The subjects are the baccalaureate graduates of the class of 1903 in Bowdoin College, Brown University (men only), Dartmouth College, Johns Hopkins University, Barnard College, Goucher College, Mt. Holyoke College, Smith College, Oberlin College and the undergraduate schools of the University of Illinois and the University of Missouri. It will be noted that the list of colleges includes four men's colleges, four women's colleges, one privately endowed co-educational college and the undergraduate schools of two middlewestern universities.

The chief considerations influencing the selection of the institutions, beyond the requirement that they be of unquestioned standing as colleges, were willingness of the college authorities to cooperate in the study and the nature of the data contained in alumni bulletins.

A single class throughout the eleven colleges was made the basis of study in order to furnish a group which had been out of college for the same length of time and had been subjected to the same general economic conditions. The class of 1903 was chosen as furnishing a group whose members had been out of college long enough to find themselves vocationally, yet not long enough to render the conclusions drawn from their experience wholly inapplicable to the present college generation. The living members of this class furnished a total of 1153 names, 563 men and 590 women.

The chief data used and their sources were: (1) Occupational records found in alumni catalogs; (2) present incomes obtained by questionnaire from members of the class of 1903 in the eleven cooperating colleges; (3) judgments of classmates as to life success of their fellows;¹ (4)

¹ Used in Chapter IV.

complete academic records for this class transcribed from the college records under the supervision of the registrars.

This investigation is concerned with baccalaureate graduates only. In certain colleges, however, there was no distinction made in the alumni lists between the straight baccalaureate graduate, the semi-professional graduate (B. S. in engineering, agriculture, architecture, chemistry, etc.) and the professional graduate (L. L. B. or B. L. S.). So it came about that the responses to the questionnaire and the scholarship records included a number of these professional and semi-professional graduates. The records of these individuals have been kept separate from those of the baccalaureates and were not used in the measurements to be reported.

OCCUPATIONAL AND INCOME STATISTICS

Table XV presents the occupational distribution of the men of the class of 1903 in the cooperating colleges, and shows the percentage of each occupational group who sent replies to the questionnaire. These percentages of replies serve as some index of the interest of the group as a whole and of the differences in interest among the various occupational

TABLE XV
OCCUPATIONAL DISTRIBUTION, CLASS OF 1903 (MEN), SHOWING PERCENTAGES
OF EACH OCCUPATION ANSWERING THE QUESTIONNAIRE

	Bac. Grad.	Prof. Grad.	Semi- Prof. Grad.	Total	Bac. Reply- ing	Prof. Reply- ing	Semi- Prof. Reply- ing	Total Reply- ing	Per- centage Reply- ing
Business.....	149	8	9	166	63	8	6	77	46.4
Teaching.....	83	-----	2	85	65	-----	-----	65	76.5
Law.....	66	20	-----	86	41	6	-----	47	54.7
Medicine.....	54	-----	-----	54	32	-----	-----	32	59.3
Engineering.....	39	-----	42	81	21	-----	32	53	65.4
Ministry.....	21	-----	-----	21	13	-----	-----	13	61.9
Other Occupations.....	44	-----	14	58	22	-----	5	27	46.5
Unknown.....	11	-----	1	12	-----	-----	-----	-----	-----
Totals.....	467	28	68	563	257	14	43	314	55.8

groups in the question of relationship between college activities and vocational achievement. They represent rather less than the real percentage of interest, however, as the base used in calculating the percentages is the total number of individuals in each group, which includes those who were not reached by the questionnaire either because they were abroad or because their correct addresses were not available.

The group yields 467 baccalaureate graduates, 28 graduates with professional degrees (27 L.L.B. and 1 B.L.S.); and 68 with semi-professional degrees (B.S. in M.E., E.E., C.E., Ag., Ch., Arch.). The

occupational distribution of the baccalaureate group shows that 149 of the 467 men or 31.9 per cent are in business, 83 or 17.8 per cent are teachers; 66 or 14.1 per cent are lawyers; 54 or 11.6 per cent are physicians; 39 or 8.4 per cent are engineers; 21 or 4.5 per cent are ministers; 44 or 9.4 per cent in other occupations (journalism, forestry, chemistry, farming, social work, dentistry, public service, architecture, pharmacy, scientific work, library, music, dramatic reading, in the order listed, one to eight in a given occupation). The occupations of 11 men, 2.3 per cent of the group, are unknown.

With reference to replies to the questionnaire, the table shows that nearly 56 per cent of the group as a whole (55 per cent of the baccalaureate group) indicated their interest by responding with a part or all of the information requested. The highest percentage of replies, 76.5 per cent, came from the teachers. Replies from the other occupational groups came in the following order: engineers 65.4 per cent; ministers 61.9 per cent; doctors 59.3 per cent; lawyers 54.7 per cent; business men 46.4 per cent. Of the unclassified group, 46.5 per cent replied. The outstanding fact here is the very high percentage of replies from teachers, the high percentage for professional groups in general as compared with the considerably lower percentage of replies from the business group. Apart from their possible use as an index of interest in this investigation, these percentages offer one basis for estimating the reliability of the results of this study.

Table XVI gives the occupational distribution of the women of the class of 1903 in the cooperating colleges.

There are 556 living baccalaureate graduates, 34 professional graduates (32 B.L.S. and 2 L.L.B.)—590 in all. Of the baccalaureate group, 285 or 51.2 per cent are married; 213 or 38.3 per cent are engaged in paid occupations; 53 or 9.5 per cent have no recorded occupation. A number of the group with no present occupation have been employed at different times since graduation for periods of varying lengths. Undoubtedly some members of this group would, if specifically asked, report themselves with some volunteer or unpaid occupation, either "helping at home" or social work, as did three of those to whom question blanks were sent by mistake.

TABLE XVI
OCCUPATIONAL DISTRIBUTION, CLASS OF 1903 (WOMEN)

Occupation	Baccalaureate	Professional	Totals
Paid Occupations			
Teaching.....	144	-----	144
Business.....	19	-----	19
Soc. and Relig.....	21	-----	21
Librarian.....	10	21	31
Law.....	1	-----	1
Medicine.....	2	-----	2
Osteopathy.....	1	-----	1
Nursing.....	3	-----	3
Journalism.....	5	-----	5
Craft Jewelry.....	1	-----	1
Science.....	1	-----	1
Farming.....	1	-----	1
Paid Homekeeping.....	3	-----	3
Interior Decorating.....	1	-----	1
Totals.....	213	21	234
Unpaid Occupations			
Marriage.....	285	11	296
Volunteer Social Service and Unpaid Homekeeping.....	3	-----	3
Students.....	2	-----	2
Totals.....	290	11	301
No Recorded Occupations.....	53	2	55
Total Women Graduates.....	556	34	590

Of the 213 baccalaureate graduates engaged in paid occupations, 144 or 67.6 per cent are teachers, 21 or 9.8 per cent are in social and religious work; 19 or 8.9 per cent are in business (mostly secretaries or stenographers); and 10 or 4.7 per cent are librarians. The number in each of the other recorded occupations is too small for separate treatment. Of the 34 women who took professional degrees (32 B.L.S. and 2 L.L.B.) 11 or approximately 30 per cent are married; and 21 or approximately 60 per cent are librarians. Replies were received from 136 or 47.7 per cent of the married baccalaureate graduates, and from 150 or 70.4 per cent of the 213 engaged in paid occupations.

TABLE XVII

INCOME DISTRIBUTION OF LARGER OCCUPATIONAL GROUPS 12½ YEARS AFTER GRADUATION

Income	Men						Women	
	Teaching	Business	Law	Medicine	Engineering	Ministry	Teaching	Business
\$500-750.....							7	†3
760-889.....							11	2
900-1150.....	1	3		2		1	†28	3
1160-1350.....	3	3		1		1	17	†2
1360-1550.....	3	2	4	1	1	1	†12	1
1560-1750.....	†12	2			2	†3	7	
1760-1950.....	8	4	2	1	1	1	6	
1960-2150.....	9	†3	†4	2	†6	1	1	
2160-2350.....	10			†1	1	†2	2	
2360-2550.....	†7	7	1	2	†4	1	2	
2560-2750.....	3	5		1	1	1	1	
2760-2950.....	1	1	2	1				
2960-3150.....	3	8	3	4			1	
3160-3350.....		2	2	2				
3360-3550.....	2	1	3	1	2			
3560-3750.....	1	3		1	1			
3760-3950.....		1	1			1		1
3960-4150.....		2	3					
4160-4350.....			†1					
4360-4550.....		1	2	1	1			
4560-4750.....		1						
4760-4950.....	1	†2						
4960-5150.....		2	1	†2				
5160-5350.....								
5360-5550.....				1				
5560-5750.....								
5760-5950.....		1						
5960-6150.....			2	5				
6160-6350.....		2						
6360-6550.....								
6560-6750.....								
6760-6950.....								
6960-7150.....			1					
7160-7350.....								
7360-7550.....		1						
7560-7750.....		1						
7760-7950.....		1						
7960-9900.....								
10,000-11,000.....	1	2	1	1				
11,000-12,000.....		2						
12,000-13,000.....		1	1					
13,000-14,000.....								
14,000-15,000.....		1						
15,000-16,000.....								
16,000-17,000.....		1						
17,000-18,000.....		1						
Total Frequencies.....	65	67	34	30	20	13	95	12
Median Income.....	\$2000	\$3000	\$3275	\$3050	\$2150	\$1932	\$1200	\$950

†Indicates the limits of the middle 50 per cent for each occupation.

The same form of occupational questionnaire was sent to the unmarried women engaged in paid occupations as was sent to the men. Since income is used in this study as a measure of vocational attainment this group is the only one whose records furnish data for inclusion in the particular measurement to be reported in this chapter. A different questionnaire was sent, however, to the married group in the hope of obtaining data which might contribute toward the development of some measure of success in what is commonly designated as "home making."¹ Statistics of replies to this questionnaire are included in the summary of replies given below. Questionnaires were not sent to those women listed in the alumni catalogues as having no occupation. In a few cases because of errors in the alumni lists question blanks reached women who were neither married nor engaged in paid occupations. Replies were received from 136 or 47.7 per cent of the married baccalaureate graduates and from 150 or 70.4 per cent of the 213 women engaged in paid occupations.

The income distributions for each of the larger vocational groups, men and women, are presented in Table XVII. These figures were obtained from the questionnaire blanks of baccalaureate graduates in response to the question:

"For the past year what was your income *from all sources* (exclusive of inheritance and income from inheritance)?"

METHOD OF MEASUREMENT USED

The method used in the measurement of the relation between undergraduate marks and income twelve years after graduation is the method statistically known as correlation. This method is based upon the assumption that the most probable measure of relationship between two factors takes account as fully as possible of the *varying amounts* of each factor considered. It differs markedly from what Thorndike calls the "all or none" method which disregards the amounts or degrees of the factors to be measured. The all or none treatment would either include or exclude a man from the group "successful men" or "high scholarship men." It is illustrated in most of the studies reported in Chapter II.

But success, however defined, is a relative matter and exists in varying amounts. The method of correlation arrives at its results by a comparison of each amount of the first factor with the amount of the

¹ The attempt to devise such a measure was abandoned so far as this particular investigation is concerned. The data collected concerning the activities of the married women will probably be used in a later study dealing with that group specifically.

second factor which accompanies it. That is, in the case of our problem, each of the varying amounts of undergraduate scholastic attainment achieved by the members of the group studied is compared with the amount of income of the same individual in later life. These paired values for each individual, namely, rank or grade in scholarship and rank or number of dollars income, constitute the two series from which the coefficient of correlation is calculated. This coefficient of correlation is a measure of the probable closeness of relationship between scholarship and income.

A perfect positive correlation, denoted by $r = 1$, would indicate that for the group studied, at least, it would have been possible to predict accurately a man's future position as to income among his fellow graduates on the basis of his undergraduate scholastic record. The size of the r , that is, its approximation to the perfect correspondence indicated by 1.00, is the measure of the closeness of relationship between the factors in question. For example, $r = .99$ would be practically perfect correlation.

If a coefficient of -1.00 were found, this would indicate a perfect *inverse* relationship between scholarship and income. Future earnings could still be safely predicted from marks, but we should then find the man who stood at the bottom of the class enjoying the largest income and the man who led his class receiving the smallest monetary reward. This would more than substantiate the student tradition that the high scholarship man is likely to be outstripped by the poor student in the years after graduation. The size of the r , then, denotes the closeness of the probable relationship, while the sign plus or minus, shows whether the relationship is positive, that is, such that increments of the one may be expected to be found with increments of the other, or negative, that is, larger amounts of the one may be expected to occur with correspondingly smaller amounts of the other.

It must be remembered that a coefficient of correlation represents simply the most probable measure of relationship between two factors in the group studied. The extent to which inferences drawn from correlations obtained from one group may safely be applied to other similar groups will depend upon the degree to which the group measured is a random sampling of the larger whole of which each group is a part. The group measured must also include enough cases to be truly representative of the larger group from which it was drawn. That is, a coefficient of correlation between scholarship and income, to be of value for prognosis of the vocational success of college men and women, should be the result of measuring a random selection of college graduates of

sufficient number to be representative of college graduates in general. The correlations reported in this chapter, in so far as their reliability is established, measure the probability that scholarship in college is prophetic of success in vocation, success being measured by income twelve and one-half years after graduation. The exact meaning of different series of correlations is defined in each case, in terms of the data which were available and the method used in calculating the coefficients.

The writer believes that the men and women included in the class of 1903 in the eleven cooperating colleges are a fairly representative body of college graduates. Ideally the group should have been selected to include every type of college, and every section of the country. The ideal in these particulars was sacrificed to the availability of the required data and the limitations of time and money. The numbers included in the basal group, something over eleven hundred men and women, seemed large enough for valid conclusions. Unfortunately, the size of this group was reduced in various ways so that the actual correlations were based on numbers much smaller than they should be for precise arguments, involving small differences. It is hoped that at least they are large enough to suggest a trend which may be verified or corrected by further studies using the same methods of measurement.

FACTORS DETERMINING NUMBER OF CASES FOR CORRELATION

A number of conditions operated to reduce the original group of 1153 college graduates, and to break it up into smaller groups, thus reducing the reliability of the coefficients of correlation finally calculated. In the first place something over 100 individuals were not reached by the questionnaire, because of defective or missing addresses or because of foreign residence. In the second place, something over one half of the women were married and since the majority of these had no paid occupation obviously the income measure of success was inapplicable to them. In the third place, because of the failure of the alumni lists to distinguish the baccalaureate graduates from those whose courses were more definitely specialized as indicated by a B.S. in Agriculture, Chemistry or Engineering, or distinctly professional as implied by a degree of L.L.B. or B.L.S., 130 men and women to whom letters were sent fell outside of the specific inquiry with which this monograph is concerned. A fourth factor in reducing the number of cases for correlation was failure to respond to the questionnaire. Income, one of the two measures for correlation, was available only for the men and women who were willing to furnish this item.

The final cause which operated to produce correlations based on a

much smaller number of cases than was expected from the size of the original group, was the necessity of dividing the baccalaureate graduates who furnished complete data for correlation into groups, first on the basis of vocation, and second, on the basis of sex. Inspection of the tabulation of income distributions for different occupations given in Table XVII, page 23, will reveal at once the invalidity of any measurement of the relation between scholarship and income which fails to differentiate the vocations in which the incomes were earned. The use of income as a measure of vocational success can only be justified on the assumption that in the long run the best teachers, the best lawyers, the best ministers, receive the highest remuneration, as compared with their fellows in the same occupations. Were we to disregard vocational lines we should have to conclude on the basis of the income distribution of Table XVII that the most successful college graduates were lawyers and business men. This conclusion would rest on the assumption that income constitutes success. The writer makes no such assumption. Rather, income is used as an objective, albeit an imperfect index of the public's recognition of the individual's relative worth within his vocation.

A further reason for measuring the relationship in question separately for each vocation, revealed itself in the course of this study. By tabulating the scholastic ranks of the individuals in the larger vocational groups it was found that the distribution of these ranks differed markedly among the various vocations. Table XVIII shows this distribution for men. The individuals in a given college class were ranked among their classmates on a scale from 1 to 32. Column X shows the frequency with which each rank was attained by individuals in each of the larger vocational groups. The median ranks are given at the bottom of the table for comparison. The high median rank for teachers, 8.5, and for engineers, 11, and the low median rank for business, 21, are striking features of this comparison. The variations in distribution among occupations for women are of doubtful significance because of the small number of cases represented in occupations other than teaching. The tabulation for women is therefore omitted.

TABLE XVIII

DISTRIBUTION OF SCHOLASTIC RANKS BY OCCUPATIONS

X—Distribution of all baccalaureate graduates in a given occupation.
 Y—Distribution of those whose incomes were available for correlation.
 Z—Distribution of those whose incomes were not available for correlation.

Scholarship Rank	Frequencies for Different Occupations (Men)																				
	Teaching			Business			Law			Medicine			Engineering			Ministry					
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
1.....	2	1	1	1	1	-	1	-	1	1	1	-	-	-	-	-	-	-	-	-	-
2.....	3	3	-	1	1	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
3.....	4	3	1	-	-	-	3	2	1	1	1	-	1	1	-	-	-	-	-	-	-
4.....	6	5	1	3	-	3	-	-	-	1	1	-	1	1	-	-	-	-	-	-	-
5.....	4	4	-	-	-	-	1	1	-	-	-	-	2	2	-	-	-	-	-	-	-
6.....	4	3	1	2	1	1	2	1	1	1	1	-	2	1	1	-	-	-	-	-	-
7.....	3	3	-	6	6	-	2	-	2	3	3	-	-	-	-	-	-	-	-	-	-
8.....	2	2	-	4	2	2	2	1	1	1	-	1	1	-	1	-	-	-	-	-	-
9.....	3	3	-	3	2	1	4	3	1	3	3	-	-	-	1	-	-	-	-	-	-
10.....	2	2	-	-	-	-	1	1	-	1	1	-	1	1	-	1	1	-	1	1	-
11.....	2	2	-	2	1	1	2	1	1	2	1	1	4	3	1	1	1	-	1	1	-
12.....	1	1	-	6	-	6	1	1	-	2	-	2	1	-	1	-	-	-	-	-	-
13.....	1	1	-	3	-	3	2	1	1	1	1	-	-	-	-	-	-	-	-	-	-
14.....	1	1	-	6	3	3	2	2	-	3	1	2	-	-	-	-	-	-	-	-	-
15.....	1	1	-	3	1	2	3	2	1	3	2	-	-	-	-	-	-	-	-	-	-
16.....	-	-	-	3	2	1	4	2	2	2	2	-	2	-	1	-	-	-	-	-	-
17.....	3	2	1	3	-	3	-	-	-	3	2	1	1	1	-	-	-	-	-	-	-
18.....	-	-	-	3	2	1	2	2	-	3	2	1	1	1	-	-	-	-	-	-	-
19.....	1	1	-	4	3	1	1	-	1	1	-	-	2	2	-	-	-	-	-	-	-
20.....	3	1	2	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
21.....	-	-	-	5	1	4	3	-	3	-	-	-	-	-	-	-	-	-	2	1	1
22.....	-	-	-	6	2	4	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
23.....	2	2	-	3	1	2	-	-	-	3	2	1	-	-	-	-	-	-	-	-	-
24.....	-	-	-	1	-	1	4	3	1	-	-	-	-	-	-	-	-	-	2	1	1
25.....	3	2	1	2	2	-	3	1	2	2	1	1	1	-	1	-	-	-	-	-	-
26.....	1	-	1	6	3	3	-	-	-	1	-	1	1	1	-	1	1	-	1	1	-
27.....	2	2	-	6	2	4	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
28.....	2	1	1	6	5	1	-	-	-	3	2	1	-	-	-	-	-	-	1	1	-
29.....	-	-	-	7	2	5	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
30.....	-	-	-	4	-	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
31.....	-	-	-	5	2	3	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
32.....	-	-	-	5	1	4	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Total Fre- quencies ¹	56	46	10	112	48	64	51	30	21	43	26	17	23	14	9	9	7	2			
Median Rank....	8.5	8.0	18.5	20.5	19	21	14	13.5	16	15	13.5	15	11	11	12	21	21	22.5			

¹ Excludes one college for which records were available only for men replying.

Since this table makes a comparison between the distribution of scholarship for those who furnish incomes and those who do not, it excludes one college which furnished scholarship records only for those men who responded to the questionnaire. When the distribution for this college is included the median ranks for those whose records were correlated are as follows:

	Median Rank	Cases
Teaching.....	9	65
Business.....	19	67
Law.....	14.5	34
Medicine.....	14.5	30
Engineering.....	10.5	20
Ministry.....	20	13

It is also manifestly unfair to compare the incomes of women with the incomes of men, even within the same occupation. A comparison of the income distribution for women teachers with the distribution for men teachers (page 23), shows that only a little more than 7 per cent of the women reach or surpass in income the median income for the men. To disregard sex in making our comparison would therefore involve such absurd assumptions as that a preponderant majority of men who are in the teaching profession are far more successful than the women in the same profession.

TREATMENT OF DATA

The basal measure used in this investigation to represent an individual's scholastic achievement is an average of all his marks for his entire college course. The record of marks was transcribed in each of the cooperating colleges, under the supervision of the registrar, on uniform blanks and in accordance with uniform instructions furnished by the writer. Transcriptions of records were thus obtained for the entire class of 1903 in nine of the colleges. In the other two colleges records were furnished only for those individuals who sent replies to the occupational questionnaire.

The calculation of an average of all marks obtained was a straightforward process for those colleges which used numerical marking systems. There were five such systems. A sixth had part of its marks in numerical terms and part in literal terms. The other five used letters or some other form of symbol, two of them specifying numerical equivalents and three making no such specification. Where numerical equivalents were assigned, the letters were translated into the equivalent figures and averages calculated. Where no numerical equivalents were suggested, such equivalents were arbitrarily assigned as seemed best to fit the case. For example, in a literal system consisting of 5 marks, A, B, C, D and F, the equivalents used were 1, 3, 4, 5 and 7, respectively, while for a system offering three marks only (H, Honor; C, Credit; P, Passed), 90, 80 and 65, respectively, were the equivalents used.

With these averages calculated and the individuals of a given college arranged in order of average marks from best to poorest, the first member of the paired values to constitute the correlation series for that college was at hand. The second measure, income, was lacking, however, for about 40 per cent of the individuals. These missing measures were in general scattered almost but not quite at random throughout the scholarship distribution of the class. But the correlation was not to be determined directly for the class as a whole,

which included many different occupations, but was to be calculated for each occupation separately. Therefore, unless the number of cases used for each calculation was to be extremely small it was necessary to combine the records of all individuals of the same sex engaged in the same occupation regardless of the college from which they had been graduated. If this procedure was to be followed, it was necessary to find some method of equating marks from different colleges.

This problem of equating marks presented serious difficulties, for the variety in marking systems was exactly as great as the number of colleges represented. This variety was partly a matter of the kind of scale used, partly a matter of the fineness of the scale, and partly a difference in meaning of measures called by the same name. For example, four of the colleges used percentage systems, permitting variations of 1 per cent or a fraction of 1 per cent in the mark of an individual in a given subject. Inspection of the distribution of marks for an entire class in each of these colleges showed, however, a range of final averages for one of these colleges of 55 per cent to 94 per cent, for another college, a range of 78 per cent to 97 per cent. What we have learned from the various studies of variability in teachers' marks would lead us to conclude that this difference in range is more likely to be due to a difference in standards of marking than to a difference in range of scholastic achievement from college to college. It would therefore be unsafe to give the same scholarship ratings to two individuals receiving the same mark, 80 per cent for example, one being a graduate of the first college, the other a graduate of the second college.

Three colleges marked by letters with percentage equivalents but the equivalents were not the same in any two of the three colleges. In one college B corresponded to 80 per cent, in another it represented a range from 70 to 80 per cent, in the third, it meant from 85 to 95 per cent. Three colleges, as already noted, used some form of literal marking without numerical equivalents. As to fineness of scale, these literal systems ranged from three to seven possible marks.

Obviously, then, the figure which represented a student's scholarship average in a given college, and placed him satisfactorily among his classmates, would not be comparable as a gross amount with such an average in another college.

The most promising method for equating the measures in such series of varying amounts is ordinarily to transmute the measures, representing each measure in terms of its deviation plus or minus from some central tendency of its series, and expressing this difference as a multiple of some measure of the variability of the series. This method was

applied to six colleges, the average being used as the central tendency and the mean square deviation as the measure of variability. The tabulation below shows the transmuted marks of the top 10th and the lowest 10th in scholarship in each of the six colleges.

TABLE XIX

TRANSMUTED MARKS OF THE HIGHEST 10TH AND LOWEST 10TH IN SCHOLARSHIP
IN SIX COLLEGES

College A	College B	College C	College D	College E	College F
1.856 σ	1.674 σ	1.601 σ	2.879 σ	2.189 σ	2.566 σ
1.762	1.659	1.539	2.570	2.094	2.364
1.638	1.595	1.414	2.403	2.065	1.623
1.622	1.532	1.331	2.403	1.923	1.497
1.575	1.485	1.268	2.165	1.875	1.462
1.528			1.761	1.808	1.423
			1.594	1.642	1.347
			1.570	1.361	1.159
			1.570	1.361	
			1.523	1.666	
			1.404		
			1.332		
			-1.166		
			1.213		
			1.213	-1.370	
			1.213	1.480	
			1.237	1.504	-1.232
			1.380	1.629	1.331
-1.294			1.380	1.685	1.366
1.341	-1.532	-1.435	1.570	1.742	1.368
1.341	1.564	1.476	1.570	1.785	1.674
1.497	1.769	1.788	1.761	1.884	1.869
1.794	2.054	2.100	1.761	1.932	2.267
2.262	2.068	2.100	2.665	1.965	2.975

Evidently these colleges differed in the degree to which their scholarship distributions approached in form the symmetrical, bell-shaped "normal curve of distribution." The combining of these gross measures of scholarship in correlation series, irrespective of the distribution for each college, would be manifestly unfair. For example, inspection of this table shows that the highest student in college B is represented by a score which is exceeded by 6 students or 5 per cent of the students in college D, by 6 or nearly 6 per cent in college E; the best student in college A has a poorer rating than any of the upper 5th in college D; the highest ranking in college C is lower than any of the top 7th per cent in college E. While it is probably true that some colleges draw more brilliant students than others, it would be fallacious to assume that a

given college drew such students on the basis of higher relative scores attained by its best students as compared with the best students in other colleges. For, in interpreting these college marks it must be remembered that they are based upon wholly subjective and unscientific marking systems.¹

The attempt to equate gross amounts of scholarship from college to college was finally abandoned because any method that offered hope of usable results involved a refinement of statistical procedure and an expenditure of time out of all proportion to the refinement of the original measures or to the greater exactness of the conclusions to be reached.

The alternatives were (1) to obviate the necessity of equating gross scholarship measures in the different colleges by calculating the coefficients for the main occupational groups in each college separately, then combining the resultant coefficients, weighting each coefficient in such a way as to take account of the number of cases upon which it was based; (2) to state the scholarship measure of each individual in terms of his relative position among his classmates, assuming that a given relative position in one college is equivalent in scholastic achievement to the same relative position in any other college, thus providing a means of equating ranks rather than gross amounts of scholarship. Each of these alternatives has advantages and disadvantages. Since it was desirable to use all the facts as completely as possible, both methods of measurement were adopted.

In preparing the series of paired values for correlation by the method of relative positions it was necessary to adopt some common base for ranking the individuals, since the classes varied in size from 45 to 207 members. For this purpose 32 was arbitrarily selected. Each individual in a given college class was ranked on a scale from 1 to 32, according to his relative position in scholarship among his classmates (1 highest rank, 32 lowest rank). On the assumption that rank 4 in college A is equivalent to rank 4 in any other college, it was now possible to equate roughly scholastic standing in the different colleges. The method used in forming the series of paired values for calculating the coefficients of correlation between income and scholarship in the different occupational groups is illustrated in the following tabulation of the records of women engaged in social and religious work. The women were graduates of six different colleges.

¹ Several of the colleges report changes in their marking systems since 1903.

TABLE XX

TABULATION OF THE INCOME AND SCHOLARSHIP RECORDS OF A GIVEN VOCATIONAL GROUP AS A BASIS FOR CORRELATION

Individual	I Income	II Class Scholar- ship Rank	III Occupational Group Scholar- ship Rank	IV Income Rank
a.....	\$2,100	28	11	1
b.....	2,000	23	7	2
c.....	1,750	14	3	3.5
d.....	1,750	1	1	3.5
e.....	1,600	21	6	5
f.....	1,250	26	8.5	6
g.....	1,200	3	2	7.5
h.....	1,200	18	4	7.5
i.....	900	26	8.5	9.5
j.....	900	27	10	9.5
k.....	750	19	5	11

Individuals *a* to *k*, 11 in number, reported themselves as engaged in some form of social work or religious work, and as receiving the incomes stated in column I. The class tabulations of scholarship in terms of relative position on a scale of 1 to 32 showed for these individuals the class ranks listed in column II. Since the vocational group classified as "Women Engaged in Social and Religious Work" included only 11 individuals furnishing full data for correlation, the range of ranks for income within this group is from 1 to 11. To obtain a parallel series of scholarship measures, it was necessary to restate the measures listed in column II so that they represented on a scale of 1 to 11 the relative scholastic achievement as undergraduates of this particular group, e.g., women engaged in social and religious work twelve and one-half years after graduation. This restatement is made in column III. Column IV lists the rank of each individual with reference to income. The series of paired values constituting the correlation series are those tabulated in columns III and IV.

The method used for computing the coefficient of correlation was Spearman's method by ranks, using the formula

$$\rho = 1 - \frac{6\sum D^2}{n(n^2-1)}$$

and transmuting ρ into r by the use of appropriate tables. Table XXI records the coefficients calculated by this method for the occupations which were represented by a sufficient number of cases to justify cor-

relation. In interpreting these correlations the method of arriving at the series of paired values for correlation should be held in mind. It will be recalled that these paired values represent the relative standing in scholarship and in income of each individual of a given occupational group with reference to other college graduates *in the same occupational group* rather than with reference to position in the class as a whole. This is important to bear in mind because as Table XVIII, on page 28, shows, the scholarship distribution differs materially for men engaged in different occupations.

TABLE XXI

CORRELATIONS BETWEEN SCHOLARSHIP AND INCOME CALCULATED BY THE FORMULA:

$$r = 1 - \frac{6\sum D^2}{n(n^2-1)}$$

Occupation	<i>r</i>	P. E.	Number of Cases
MEN			
Teaching	.28	.07	65
Business	.03	.08	67
Law	.49	.09	34
Medicine	— .26	.11	30
Engineering	— .23	.14	20
Ministry	.25	.17	13
WOMEN			
Teaching	.04	.07	95
Social and Religious Work	.01	.20	11
Business	.62	.11	12

It will be noted from this table that with one exception for men and one for women the correlations are all low. Because of the rather large probable errors of the coefficients it is not possible to determine with surety from these calculations what variations may exist among different vocations as to the closeness of relationship between income and scholarship.

If we average the coefficients of correlation for the "learned professions" for which college is traditionally supposed to prepare, weighting each coefficient roughly as the square root of the number of cases which it represents, we obtain for the weighted *r*, or *r^w*, as we shall designate it, a value of .20±.05. The procedure by which this *r^w* was obtained is as follows:

Occupation	r	wt	$r \times wt$	Number of Cases
Teaching.....	.281	8	2.248	65
Law.....	.487	6	2.922	34
Ministry.....	.250	3½	.875	13
Medicine.....	— .260	5½	—1.430	30
Total.....		23	4.615	142

$$r^w = .20$$

$$\text{P.E. of } r^w = \frac{1 - (.200)^2}{\sqrt{142}} (.6745) = .05$$

Combining by the same method the correlations for all occupations (men) listed in Table XXI, we obtain an r^w of $.11 \pm .04$. While the correlation for the "learned professions" is higher than that for all occupations it is still too low to justify the prediction of relative income 12 years after graduation on the basis of relative undergraduate scholarship. The weighted coefficient for women in the three occupations listed is $.15 \pm .05$.

It must again be emphasized that the above method of treatment measures only the closeness of correspondence between relative positions in scholarship and income *within a given occupational group*, e.g., business or teaching. It takes no account of the scholastic position of the individuals *with reference to the class as a whole*. If the individuals of any given occupation were distributed throughout the scholarship range in about the same way as the individuals of any other occupation, this limited interpretation of the measurement would not be important. But inspection of the scholarship distribution by occupations given on page 28 shows that such is not the case. For convenience of reference the essential facts of this distribution are restated in Table XXII.

TABLE XXII
PERCENTAGES OF MEN IN DIFFERENT OCCUPATIONS IN SUCCESSIVE DIVISIONS OF THEIR RESPECTIVE CLASSES ACCORDING TO SCHOLARSHIP

Occupation	No. of Cases	Percentages in Each Scholastic Quartile, and in the Upper and Lower Halves of the Class									
		For Men Whose Records were Correlated					For All Men Whose Income Records ¹ were not Available				
		Quartiles				Halves		Quartiles			
		1st	2nd	3rd	4th	Upper	Lower	1st	2nd	3rd	4th
Teaching.....	65	49	25	15	11	74	26	50	20	16	14
Business.....	67	21	24	22	33	45	55	15	23	25	37
Law.....	34	26	35	18	21	61	39	27	37	20	16
Medicine.....	30	27	33	30	10	60	40	19	39	26	16
Engineering ..	20	35	30	15	20	65	35	30	39	17	13
Ministry.....	13	8	23	46	23	31	69	Number too small to include.			

¹ One of the colleges furnished scholarship records only for the men who responded to the questionnaire. The records of this college therefore had to be excluded from this side of the table, but are included in the section dealing with "Men Whose Records were Correlated."

It is evident from the statistics shown in this table that for college men the scholastic comparison in the case of teachers is, relatively speaking, among the members of a high ranking group, while in the case of business men it is among the members of a low ranking group. Comparing these two vocations by scholarship quartiles we find in the first or top quartile 49 per cent of the teachers as against 21 per cent of the business men; in the second quartile 25 per cent of the teachers and 24 per cent of the business men; in the third quartile 15 per cent of the teachers and 22 per cent of the business men; in the fourth quartile 11 per cent of the teachers and 33 per cent of the business men. Comparing the scholastic distribution of the two occupations as to percentages above and below the middle rank for the class, we find 74 per cent of the teachers as against 45 per cent of the business men in the upper half of the class, and in the lower half we find 26 per cent of the teachers and 55 per cent of the business men.

Since these vocational variations in the distribution of undergraduate scholarship exist, a method of correlation which takes account of the exact *amounts* of income and scholarship would offer a more valuable contribution toward answering the second and more general question: "What is the relation between income rank in one's vocation, and undergraduate scholarship rank in the class as a whole?" Such a method of correlation would also offer a more exact measure of the relationship in question, and so is desirable from that point of view. The difficulty in applying this method, as noted earlier in this chapter, arises from the failure to discover reliable means of equating the gross amounts of scholarship from college to college. In the absence of valid means of equating marks in gross amounts, the only possibility of securing correlations based on gross amounts of scholarship and income was to measure the relationship in question for each occupation in each college separately and then to combine the results for each occupation from all colleges. This method could not hope to yield conclusive results because of the small number of cases available for many of the individual correlations. However, since the available data were not adapted to more satisfactory treatment, this method was adopted.

The procedure used was as follows. For each college the individuals furnishing income data were grouped according to occupations into the six major occupational groups represented in the series of correlations based on relative positions. Two records were then tabulated for each of these individuals: (1) scholarship mark (average of all marks for the entire college course), and (2) amount of income for the past year (exclusive of inheritance and income from inheritance). These two

records constituted the paired values for correlation. Applying the Pearson formula

$$r = \frac{\sum x \cdot y}{\sqrt{x^2} \cdot \sqrt{y^2}}$$

coefficients of correlation were calculated for each occupation in each college. The resultant coefficients for each of the chief occupations were then assembled and averaged, each coefficient having been weighted as the square root of the number of cases from which it was calculated.¹ The weighted r , or r^w , serves as a measure of the relationship in question. Table XXIII shows the coefficients of correlation calculated by this method.

TABLE XXIII
CORRELATIONS BETWEEN MARKS AND INCOME BASED ON GROSS AMOUNTS OF EACH FACTOR

Occupation	Number of Cases	Number of Colleges	r^w	P. E.
MEN				
Teaching	65	7	.28	.07
Business	63	7	.10	.08
Law	34	6	.19	.11
Medicine	27	5	— .30	.17
Engineering	18	3	— .22	.15
WOMEN				
Teaching	95	7	.02	.07

The ministry is omitted from this series because the number of individuals per college was in most cases too small to justify correlation.

Examination of this series of correlations reveals the same outstanding features as those noted in the series based upon relative scholastic position in the vocational group and relative income position in the same group. For convenience in comparing the two series of correlations they are listed in Table XXIV, in parallel columns.

In so far as correlations calculated by the method described for series two may be accepted as valid for measuring a possible drift of relationship, the second set of measures offers no more justification than did the first series for predicting future vocational achievement on the basis of college marks.

¹ For illustration of the method used in securing r^w , see page 35.

TABLE XXIV
COMPARISON OF CORRELATIONS BASED ON AMOUNTS WITH CORRELATIONS BASED
ON RELATIVE POSITION IN VOCATIONAL GROUP

Occupation	<i>r</i> ^w Based on Gross Amounts of Scholar- ship and Income		No. of Cases	<i>r</i> Based on Income Rank and Scholar- ship Rank within Vocational Group		No. of Cases
	<i>r</i> ^w	P.E.		<i>r</i>	P.E.	
MEN						
Teaching.....	.28	.07	65	.28	.08	65
Business.....	.10	.08	63	.03	.09	67
Law.....	.19	.11	34	.49	.09	34
Medicine.....	— .30	.17	27	— .26	.12	30
Engineering.....	— .22	.15	18	— .23	.15	20
Ministry.....	Cases per college too few		for correlation.	.25	.18	13
WOMEN						
Teaching.....	.02	.06	95	.04	.07	95
ALL OCCUPATIONS						
Men.....	.06	.05	207	.11	.04	229
Women.....	Cases per college too few		for correlation.	.15	.05	118

INTERPRETATION OF RESULTS

In the light of the low coefficients of correlation obtained by each of the two methods of measurement used, it is apparent that no close correspondence exists between the undergraduate marks of the baccalaureate graduate and his income twelve and a half years after graduation. That some relationship probably does exist is suggested by the fact that the majority of the coefficients, while low, are positive. But it is clear that no such close correspondence exists between the facts measured as has been found to obtain between college rank and *Who's Who* achievement, rank in college, and rank in the law or medical school, rank in high school and rank in college.

Two considerations may be mentioned as probably affecting the closeness of the relationships in the three cases mentioned above as compared with the relationships studied in this investigation. In the first place a common factor, which we have been pleased to call "general intelligence," is probably the trait most surely measured by school marks, whether in high school, college or professional school, and by the type of success which is most frequently responsible for mention in *Who's Who*. That this trait is measured with a fair degree of success by school marks is indicated by the generally close agreement between scores achieved by students in intelligence tests and their school marks. It is entirely possible, however, that

this trait is of far less importance, relatively, in determining success in vocation than in determining scholastic achievement. In vocational success other elements of personal equipment undoubtedly play a part. Not only emotional and other "personality" traits, but in particular the ability to manage men and the ability to manage things evidently have much to do with professional advancement in practically every field. This fact impressed the writer strongly in reading the occupational records of the class of 1903 from graduation to the year 1915-1916 as given in replies to the occupational questionnaire. Just how potent are these factors as compared with "general intelligence" in contributing to vocational success, we have at present no certain means of knowing. It is the writer's opinion that their relative potency will undoubtedly vary with different occupations.

The second consideration is the variation in scholarship range for different occupations. In interpreting any measurement of relationship between marks and later success, this factor seems important enough to justify a summary at this point of the available data on the subject. These data are presented in Tables XXV to XXVIII.

While these tabulations are not comparable as to details, they do throw into relief the marked selective tendency of scholastic success in relation to vocation, and corroborate the writer's finding of the very high scholastic position of the teaching profession, the equally low one of business, and of the generally high rank of lawyers and engineers. The figures as to the ministry are conflicting. Only nine out of one hundred Wesleyan high honor men were ministers, while Paull found 53 per cent of Harvard ministers in the upper third of their class.

TABLE XXV

OCCUPATIONAL DISTRIBUTION OF COLLEGE GRADUATES ACCORDING TO PER CENT FOUND IN SUCCESSIVE FIFTHS IN SCHOLASTIC RANK (MEN OF 1903, GRADUATES OF SIX COLLEGES) [GAMBRILL]

	Highest Fifth	Second Fifth	Middle Fifth	Fourth Fifth	Lowest Fifth	Number of Cases
Teaching.....	41	23	18	11	7	56
Business.....	4	19	26	21	30	109
Law.....	20	24	27	20	10	51
Medicine.....	7	27	39	17	10	41
Engineering.....	26	35	26	9	4	23
Ministry.....		22	11	55	11	9

TABLE XXVI
OCCUPATIONAL DISTRIBUTION OF "SUCCESSFUL" MEN ACCORDING TO PER CENT
FOUND IN SUCCESSIVE FIFTHS OF SCHOLARSHIP RANGE¹ [KUNKEL]

	Highest Fifth	Second Fifth	Middle Fifth	Fourth Fifth	Lowest Fifth	Number of Cases
Teaching.....	62	20	5.5	9.1	3.6	55
Business.....	16	18	22	22	22	50
Law.....	32.5	18.5	23.1	10.8	16.9	65
Medicine.....	24.1	27.6	24.1	10.3	13.8	29
Engineering.....	30.8	11.9	19.2	21.5	16.7	42
Ministry.....	25	25	25	17	7.5	40
Journalism.....	9.1	9.1	45.5	9.1	18.2	11
Science.....	40	20	10	-----	30	10

TABLE XXVII
DISTRIBUTION ACCORDING TO OCCUPATION OF 2,145 HARVARD COLLEGE GRADUATES
OF THE CLASSES 1901, 1902, 1903, 1904, 1905, SHOWING PERCENTAGE IN
EACH SUCCESSIVE SCHOLASTIC TERTILE² [PAULL]

	Highest Third	Middle Third	Lowest Third	Number of Cases
Teaching and Social Science.....	54	32	14	307
Business.....	21	33	46	550
Manufacturing.....	21	35	44	200
Law.....	43	34	23	486
Medicine.....	29	34	37	141
Engineering.....	36	34	30	160
Ministry.....	53	32	15	52
Journalism.....	29	41	30	53
Agriculture.....	14	30	56	43
Other Occupations.....	26	25	49	153

TABLE XXVIII
PERCENTAGES OF HIGH HONOR MEN COMPARED WITH PERCENTAGES OF WESLEYAN
GRADUATES FOUND IN *Who's Who* FOR DIFFERENT OCCUPATIONS³
[NICHOLSON]

	High Honor Graduates, 1875-1906. (100 men)	Wesleyan Graduates Mentioned in <i>Who's Who</i> (159 men)
Teaching.....	55	40
Law.....	20	15
Ministry.....	9	25
Business.....	6	2½
Physicians.....	3	Practically all the others are in some one of the learned professions.
Scientists.....	3	
Writing and Journalism.....	3	
Patent Office Examiner.....	1	

¹ "The Lafayette," April 15, 1917.

² "The Relative Standing in College of Graduates Entering Various Professions," *School and Society*, May 26, 1917.

³ "Success in College and in After Life," *School and Society*, August 14, 1915.

The fact that *Who's Who* as a measure of success unduly weights certain occupations has been recognized by several of the investigators who have studied the relation between success in college and success in after life. It should be noted that those occupations which this measure favors are among the vocations which have a very high scholarship distribution. Nicholson found, for example, that 55 per cent of Wesleyan's high honor men for the years 1875-1906 were teachers and that 40 per cent of the Wesleyan *Who's Who* men were in this occupation. He also found that the 1914-1915 edition of *Who's Who* includes the names of all but four of the faculty of Wesleyan University of professorial rank, and from 30 per cent to practically 100 per cent of the professors of a representative group of other colleges. Law is another occupation which has a relatively high scholastic distribution. According to the educational statistics given in the 1910-1911 edition of *Who's Who*, law has a larger number of representatives in the volume than any other occupation. The *vocational* selection of *Who's Who* thus seems, in part at least, to be identical with the *vocational* selection of high scholarship.

The failure to find a very close relation between college marks and later income does not prove that it does not pay to study, any more than the opposite finding would prove that it does pay to study.¹ As pointed out in Chapter I a high correlation could at best prove that the college had succeeded in discovering and rewarding the kind of ability that later did succeed in vocation—that its measures and those of the world outside of college are the same. In any case the burden of proof would still rest upon the college to show that the training which it had given its able men had contributed materially to their success. The finding of a low correlation does show, however, either that the college has failed to enlist the energies of its undergraduates to such a degree that its marks serve as an index of vocational ability as measured by income, or that the traits which lead to scholastic success are not in large measure the traits which register later in relatively high income within one's vocational group.

¹ Note the implication of Foster's article, "Should Students Study?" *Harper's Magazine*, September, 1916.

CHAPTER IV

EXTRA-CURRICULAR ACTIVITY IN RELATION TO INCOME

The college authorities usually record a single measure of a student's achievement—his scholastic marks. His mates, however, rate him in terms of his zeal and success in the multitude of activities which go to make up what is known as "college life." By implication this "life" seems to exclude studies, yet by a large proportion of students and "old grads" it is ranked as the part of college experience which is really fruitful in preparing for the practical demands of life when college days are over. Whether this judgment is valid or not, it may easily be true that many a student reveals the quality of his native ability more clearly in extra-curricular activities than he does in his college studies. Ability is most accurately measured when the result tested is the product of wholehearted effort. Since in extra-curricular activities the student is himself the judge of worth, he is likely to "go in" only for those pursuits which appeal to his interest or which promise to yield results which are satisfying, such as esteem of classmates, personal glory. Hence the impulsion to activity is from within and the energy called forth is likely to be purposive to a degree which, unfortunately, is seldom matched in the scholastic work of the college.

To the writer it seems distinctly worthwhile to discover, if possible, to what extent extra-curricular activities and success are prognostic of success in later life. The men who have investigated the relationship between success in college and success in after-life usually imply and sometimes state the conviction that their findings have disproved the belief that a student's prominence in undergraduate extra-curricular activities offers an index of his probable success in later life. Only one of these writers has taken the trouble to investigate the foundation of this belief of the rank and file of students and alumni, as opposed to the conviction of college officials. Nicholson,¹ in connection with his study of "College Records and Distinction in Life," made a study of the relation between extra-curricular success and *Who's Who* distinction. His study covers ten classes of Wesleyan University from 1890 to 1899, inclusive. The yearbook published by the junior class at Wesleyan University, *Olla Podrida*, has a well defined system of "points" for the

¹ Chapter II. For details of the latter criterion, see summary of this study, pp. 8-10.

various types of non-academic achievement. These points were used by Nicholson as the criterion for measuring distinction in extra-curricular pursuits. Membership in *Who's Who*, or the type of achievement which would entitle one to such mention as judged by classmates or faculty, was the standard for testing distinction in life. Using these two measures, he found that of the 54 men who won distinction from their classmates while undergraduates, 18 or one-third attained noteworthy success in after-life. In these same classes, Nicholson had found that 30 per cent of the men who achieved the scholastic distinction of election to the Phi Beta Kappa Society won the type of distinction in after-life indicated by inclusion in *Who's Who* or by faculty and classmates judgment of being worthy of such mention. "In other words," says Nicholson, "the Phi Beta Kappa man and the one who is honored by his classmates by election to undergraduate office have each approximately the same chance of becoming famous in after-life." Nicholson's results as to the relation between high scholarship and later distinction have been widely quoted. Strange to say, little attention seems to have been given to the fact that he found an equally close relationship between non-academic undergraduate achievement and later distinction.

Another study of extra-curricular activities, while not directly comparable because it deals with a professional group, engineers, should be mentioned here. This study was one phase of the investigation carried on by the Association of College Registrars, the other phase of which was reported in Chapter II. The men whose extra-scholastic activities were studied had been rated as eminent on the basis of office holding, membership in standing committees, or service as representatives of the four "founder" engineer societies during the years 1915-1919. This rating, as stated by Professor Walters, of Lehigh University, who reports the investigation, emphasizes scientific and ethical phases of success.

The registrars were asked to report specifically on activities in (a) athletics, (b) literary and engineering societies, and (c) social organizations. Returns were received for about one-fifth of the men as compared with more than two-thirds on scholarship rating. The ratings used were as follows: Under athletics, the rating A was assigned to men who won letters in major sports; B, to those who played on first or second teams; C, to those who played on class teams; D, to those who took some part in athletics; E, to those not recorded as taking any part in athletics. Under literary and engineering societies, A was given to those who held offices or served on editorial boards of literary and engineering journals; B, to those who were active in the societies in various ways; C, to those

who participated moderately; D, to those who held membership; E, to those with no record in such activities. A similar plan was followed for rating as to activity in social organizations.

The following table shows the distribution of the men on the basis of these ratings.

TABLE XXIX
EMINENT ENGINEERS. EXTRA-SCHOLASTIC ACTIVITIES

Rating	Athletics		Literary and Scientific		Social	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
A.....	24	13.5	59	31.5	44	25.7
B.....	14	7.9	19	10.2	11	6.4
C.....	19	10.6	22	11.8	50	29.3
D.....	4	2.2	22	11.8	10	5.8
E.....	117	65.7	65	34.7	56	32.7
Total.....	178		187		171	

Professor Walters summarizes the results as follows:¹

"According to the table, two-thirds of the men upon whom reports were made did not take part in athletics, a proportion probably true for all college students in earlier days. Of those who did take part, the results show the largest percentage of men in the A rating—good athletes.

"According to the table, about two-thirds of the men upon whom reports were made took part in literary and engineering society activities; of these the largest percentage were in the A rating—were energetic in their activities along these lines.

"According to the table, about two-thirds of the men upon whom reports were made took part in social affairs. The largest percentage were moderately active; the next largest percentage were energetically active.

"Conclusions cannot safely be drawn from these extra-scholastic figures. The relatively small number of participants and the meager interest in athletics in the era represented preclude generalization as to the influence of athletics, particularly as applied to present-day college life when success in sports is so widely sought and so highly rewarded."

The writer of this monograph has made a further study of the relation-

¹ Walters: "The Scholastic Training of Eminent American Engineers," *School and Society*, Mar. 12, 1921.

ship between extra-curricular attainment and success in life, using as subjects the members of the class of 1903 in six of the cooperating colleges listed in Chapter III. The first and most serious difficulty in attempting such an investigation lies in obtaining a valid measure of success in extra-curricular pursuits. So far as the writer has been able to discover, college officials have until very recently made no record of such achievements. The only records available for the class of 1903 are to be found in student yearbooks in which are recorded by the students the extra-curricular activities of the seniors throughout their college course: membership in various organizations, class, athletic, literary, musical, forensic, dramatic or social; offices held and honors won. The completeness of this record differs greatly from college to college. The lack of uniformity in activities represented and the difference in the significance of membership in certain types of organizations in different colleges, as well as this variation in the completeness of the records, make these student yearbooks a rather unsatisfactory basis for measuring activity and success in extra-curricular pursuits. They furnish, however, the nearest approach to an objective measure, and contain, in fact, the only available record of such activities. They have, therefore, been used by the writer as a basis for rating extra-curricular success in an attempt to measure the relationship between this type of undergraduate achievement and success in vocation as measured by income.

Student yearbooks containing the records of the class of 1903 were secured from six of the cooperating colleges listed in Chapter III. From these books tabulations were made for each college separately, showing for each member of the class the activities recorded, offices held, and honors won. Because of the variations among the colleges as to completeness of data, number and type of activities represented, and significance of given activities, there was no attempt to equate directly the records of non-scholastic activities in the different colleges. Inspection of the records forced the conviction that any attempt to apply a point system, for example, without intimate knowledge of the undergraduate life of every college included in the investigation would simply lead to a spurious appearance of objectivity. Recourse was therefore had to the method of ranking each individual with reference to his relative position among his classmates as to range and intensity of extra-curricular activity and the winning of non-academic honors. A given rank was then treated as of equal value, regardless of the college represented.

It was also apparent that without this intimate knowledge of student life in a particular college it was hazardous to attempt a gradation of the extra-curricular success of the members of a class on a fine scale consist-

ing of a large number of units. This was especially true of colleges whose yearbooks presented rather meagre records of extra-curricular pursuits. It did seem possible, however, to arrange the individuals of any given college class in an order of merit series, on a scale from 1 to 5, without danger of greatly displacing an appreciable number of persons from their true positions among their fellows. This method was therefore followed. Each individual was assigned a rank in extra-curricular activities which represented the writer's judgment, based on student yearbook records, of his relative position among his classmates on a scale from 1 to 5. Those individuals who had furnished a statement of income were then ranked on a scale from 1 to 5, according to their relative income rankings in their respective vocations.

The paired values constituting the series for correlation were ranks on a scale from 1 to 5, representing each individual's relative position (1) in extra-curricular achievement among his classmates, (2) in income among the members of a given occupational group,—law, teaching, or business. These ranks were then treated as amounts, and the coefficient of correlation calculated by the Pearson formula

$$r = \frac{\sum x \cdot y}{\sqrt{x^2} \cdot \sqrt{y^2}}$$

This calculation yielded a coefficient of correlation for men of $.21 \pm .04$ based on 190 cases drawn from all vocational groups which were large enough to furnish income comparisons. The correlation for women, based on 47 cases, was $.31 \pm .08$.

Correlations calculated by this method for each of the chief occupational groups yield the results shown in Table XXX.

TABLE XXX

CORRELATIONS BETWEEN RANK IN INCOME AND RANK IN EXTRA-CURRICULAR
ACTIVITY BASED ON COLLEGE YEARBOOK RECORDS

Occupation	<i>r</i>	P. E.	Number of Individuals
Teaching	.19	.09	46
Business	.32	.08	51
Law	.28	.11	29
Medicine	.12	.13	24
Engineering	.15	.15	18
Ministry	.36	.17	11
All Occupations			
Men	.21	.04	190
Women	.31	.08	47

The result of this crude measurement of relationship between extra-curricular success and income twelve years after graduation is the positive but small correlation for all occupations (men) indicated by an r of $.21 \pm .04$ based upon a sufficient number of cases to give it statistical reliability. It also suggests that for certain occupations, notably the ministry, business, and law, the relationship possibly tends to be closer than that found for all occupations, as indicated by $r = .36 \pm .17$ for the ministry, $r = .32 \pm .08$ for business, and $r = .28 \pm .11$ for law. In general, however, the P.E.'s of these coefficients are large. Only in the case of business does the relative size of the P.E. and the coefficient of correlation satisfy fully the statistical requirements for reliability. The other coefficients vary in statistical reliability and the variations in their size may be without real significance.

In order to make a comparison between the value of scholarship and of extra-curricular attainment as bases for the prognosis of future success as measured by income, it was necessary to calculate coefficients of correlation between scholarship and income by the same method as that used in securing the correlations between extra-curricular achievement and income. The procedure was as follows. Each individual was ranked as to scholarship on a scale from 1 to 5, according to his relative scholastic position in the class as a whole. He was then ranked on a scale from 1 to 5, according to his relative income position within his vocational group. These two rankings for each individual constituted the paired values for the correlation series. The method used in computing the coefficients was the same as that described for the measurement of the relation between extra-curricular achievement and income. The coefficients obtained were $.11 \pm .05$ for men and $-.08 \pm .09$ for women.

Comparing these coefficients with those obtained for extra-curricular achievement, we find the correlation for a composite of all occupations almost twice as large for extra-curricular achievement and income as for scholarship and income, i.e., $.21 \pm .04$ as against $.11 \pm .05$. Table XXXI shows comparatively the coefficients for the two sets of facts for each of the larger occupational groups. It will be noted that for all occupations except law and the ministry the correlations between extra-curricular success and income are higher than the correlations between scholarship and income. The difference is very marked in the case of business.

It was the writer's original purpose to supplement the measurements just reported, by measuring the extent of agreement between classmates' and college officials' judgments of vocational success and the

TABLE XXXI

COMPARISON OF CLOSENESS OF RELATIONSHIP BETWEEN EXTRA-CURRICULAR
ACHIEVEMENT AND INCOME, AND SCHOLARSHIP AND INCOME

Occupation	Extra-Curricular Achievement and Income		Scholarship and Income	
	r	P. E.	r	P. E.
Teaching	.19	.09	.11	.09
Business	.32	.08	.03	.08
Law	.28	.11	.58	.07
Medicine	.12	.13	— .21	.13
Engineering	.15	.15	— .25	.16
Ministry	.36	.17	.40	.17
All Occupations				
Men	.21	.04	.11	.05
Women	.31	.08	— .08	.09

income measure here used, and also the relation between classmates' and college officials' judgments of extra-curricular success and the ratings given by the writer on the basis of yearbook records. It proved, however, extremely difficult to secure such judgments. Not only was the required task a difficult and laborious one at best, but those who were asked to make the ratings usually felt that they had not intimate enough knowledge of the careers of their classmates or former students to make any sort of a fair comparative rating. Those altruistic men and women who undertook the task did so in every case with expressions of doubt as to the accuracy of their judgments, especially in the matter of present vocational success. This was true in spite of the fact that the judges had been very carefully selected with reference to their probable opportunities for keeping in intimate touch with the careers of their classmates and former students. A few ratings by classmates were secured, however, and one rating by a former dean. The data thus secured are not adequate for any conclusive evidence on the points in question. The measurements based upon them are presented with a clear realization of their unavoidable crudities and their numerous sources of unreliability. The results are suggestive of possible trends only in connection with the remainder of the study.

The directions for ranking which accompanied the explanatory letter sent to the judges, were as follows:

DIRECTIONS FOR RANKING

In column I, place opposite each name a number which represents that individual's rank in the class on the basis of general all-round promise *while a student*. The individual ranking highest should be marked 1, the next highest 2, and so on. Any two or more judged to be equal in rank may be given the same ranking number.

In column II, rank as above, on the basis of activity and success in extra-curricular or student activities while in college. Rank the highest individual 1; the next highest 2, and so on.

In column III, rate each individual for *present vocational success*, on a scale from 1 to 5. Let 1 equal eminently successful in vocation; 2 very successful; 3 fairly successful or an average success; 4 somewhat below average success; 5 not successful, that is, just barely getting on. In cases where you feel that success has been greatly aided by social position or hereditary wealth, please indicate the fact by (s) or (w) after the rating given.

This judgment need not *necessarily* be based on earning power. Make your own definition of "vocational success." If you care to tell me what factors you include in the definition I should be glad of such a statement.

An alphabetical list of the class was furnished, ruled with three parallel columns for the appropriate ratings for each individual. The directions for ranking were rarely followed in their entirety, however. Some judges ranked their classmates in promise and in extra-curricular success on a scale from 1 to 5, others ranked them on a scale of 1 to 10, etc., while an occasional judge ranked them as requested. More uniform results would probably have been secured if all rankings had been called for on a 1 to 5 scale basis. In order to make the ratings comparable the writer reduced the rankings obtained to such a five-point basis. For example, where ten ranks had been used, ranks 1 and 2 were called 1, 3 and 4 were called 2, etc. These rerankings were used in all cases where rankings by different judges had to be compared or combined.

The ratings thus reduced to a 1 to 5 rank basis, were then correlated, each with every other, with scholarship and income, also reduced to a 1 to 5 rank basis, and with the author's rating upon extra-curricular activities, based on yearbook records. The classmates' ratings used in the correlations represent the average of the judgments of two or three judges, except in the case of one college where only one judgment was available.

The method of correlation used was that described on page 46. The calculations were made for each college separately, and then combined by the method described in Chapter III, page 36. Table XXXII presents the intercorrelations of the measures used.

Since only one set of judgments of a college official was available the measurements based on these judgments are presented simply as a matter of record, with no attempt to draw conclusions from them. The summary which follows takes no account of these measurements.

The calculations based on the judgment of one college dean gave the following correlations:

Dean's Judgment of Vocational Success and Rank in Scholarship	.01±.09	n = 49
Dean's Judgment of Vocational Success and Extra-curricular Success (Yr. Bk.)	----- .54±.07	n = 43
Dean's Judgment of Vocational Success and Income	----- .46±.11	n = 22

TABLE XXXII
CORRELATIONS BETWEEN VARIOUS MEASURES OF COLLEGE SUCCESS AND OF
VOCATIONAL SUCCESS

	Men			Women		
	<i>r_w</i>	P. E.	Cases	<i>r_w</i>	P. E.	Cases
Promise and Extra-curricular Success (C. J.).....	.37	.05	100	.63	.03	154
Promise and Extra-curricular Success (Yr. Bk.).....	.32	.05	163	.32	.05	154
Promise and Scholarship Rank.....	.48	.04	165	.36	.05	155
Promise and Vocational Success (C. J.).....	.63	.04	80	.54	.04	108
Promise and Income.....	.28	.06	98	.22	.09	43
Extra-curricular Success (C. J.) and Extra-curricular Success (Yr. Bk.).....	.69	.04	101	.69	.03	155
Extra-curricular Success (C. J.) and Scholarship Rank.....	.17	.06	100	.22	.05	155
Extra-curricular Success (C. J.) and Vocational Success (C. J.).....	.35	.07	77	.35	.07	71
Extra-curricular Success (C. J.) and Income.....	.21	.08	59	.72	.05	44
Extra-curricular Success (Yr. Bk.) and Scholarship Rank.....	.16	.04	290	.21	.05	154
Extra-curricular Success (Yr. Bk.) and Vocational Success (C. J.).....	.42	.06	81	.04	.06	103
Extra-curricular Success (Yr. Bk.) and Income.....	.22	.05	169	.32	.05	46
Present Vocational Success (C. J.) and Scholarship Rank.....	.39	.06	84	.24	.06	104
Present Vocational Success (C. J.) and Income.....	.44	.08	48	.24	.10	38
Income and Scholarship.....	.12	.05	193	-.14	.09	46

NOTE: C. J.—Classmates Judgment; Yr. Bk.—Year Book Rating. Classmates' judgment of Present Vocational Success includes, in the case of married women, success in homemaking.

The nature of much of the data used in calculating these correlations is too unsatisfactory and the method too crude to give significance to the absolute size of the coefficients. Considered comparatively, however, the trends are remarkably consistent and suggest the probable reality of the relationships indicated. At least they suggest the desirability of further study for verification or negation of the suggested trend.

So far as weight may be given to these coefficients considered comparatively, they serve to support the conclusion, based upon the measurement reported in the first part of this chapter that the relation between vocational success and extra-curricular activity is somewhat closer than the relationship between vocational success and scholarship. For the measurement just reported this holds true whether we measure vocational success in terms of income or of classmates' judgments, and whether we measure extra-curricular success by the judgments of classmates twelve and one-half years after graduation, or by ratings based on class yearbook records.

The results of the measurements reported in this chapter do not prove that college life contributes more to vocational success than does

the work of the classroom, and that therefore college life is the thing and studies do not count. It only shows that the extra-curricular activities and success of the student probably are a selective agency in discovering the kind of ability which will later achieve vocational success, and that these activities should therefore be taken into account in any prognosis of such success. For the guidance of appointment committees and educational and vocational advisers of students, it is important that these findings be verified and that the variations in closeness of the relationships for different occupations be investigated.

RELATION BETWEEN RANK IN BOTH SCHOLARSHIP AND EXTRA-CURRICULAR
ACTIVITY AND RANK IN VOCATION

"General intelligence" and whatever other traits are specifically measured by marks, play a part in vocational success. Leadership, executive ability, energy—whatever qualities are measured by extra-curricular success—also play a part, perhaps a larger part, in such success. It would be desirable to measure the relationship between vocational success and the attainment of high rank in both scholarship and extra-curricular activities. The data available for this purpose are not sufficient for reliable statistical treatment. A tabulation, however, of high ranking men and low ranking men on the basis of college achievement in both measures, and the income ranks of these men, is highly interesting and suggestive. Such a tabulation is presented in Table XXXIII.

The tendency shown here suggests the tentative conclusion that the individual who has the qualities which enable him to distinguish himself in both scholarship and extra-curricular pursuits, is likely to rank well above the average of his classmates in his vocation twelve and one-half years after graduation, whether his success be measured by income or by the judgments of his classmates. The tendency seems almost equally strong at the other end of the scale, for the men who rank low in college by both measures seem to stand low in vocational achievement.¹

¹ The rather consistently higher rank of men in this lower group, when rated by classmates' judgment, than when rated by income is probably due to the fact that only two judges gave any rating of 5, and a number gave no rating, or almost no ratings below 3.

TABLE XXXIII

VOCATIONAL EFFICIENCY RANKS OF MEN STANDING HIGH IN BOTH SCHOLARSHIP
AND EXTRA-CURRICULAR ACTIVITY AND OF MEN RATING LOW BY BOTH
MEASURES

Scholarship Rank 1-5	Extra-cur- ricular Rank C. J.	Extra-cur- ricular Rank Yr. Bk.	Income Rank in Occupational Group	Vocational Success C. J.	Occupation
1	1	1	3	1	L
1	1.5	1	1	1	B
1	3	1	1	3	T
1	1	1	1	1	T
1	1	2	1	1	T
1	1	1	2	1	L
1	1	1	3	1S.	L
1	1	1	3	1	L
2	1	2	2	2.5	B
2	1.5	2	3	1	E
1	1	2	3	2	B
4	4.5	5	5	3	M
5	5	4	3	3	B
5	5	5	3	4	B
4	4	5	2	3	B
4	5	4	?	4	B
4	4	4	3	3	M
5	5	5	5	3	L
5	4	4	5	3	L
4	4	5	4	3	M
5	4	5	5	?	L
5	5	4	2	3	E
4	5	5	3	3	B
4	5	5	4	2	E
4	4	4	5	3	T
4	5	5	4	3	B
4	5	5	4	2W.	B
5	5	4	3	3	T
4	4.5	5	4	3	B
4	4.5	5	?	3	P
5	3.5	5	4	3	T

T-Teaching; B-Business; L-Law; P-Medicine; E-Engineering; M-Ministry; S. W.-Social position or hereditary wealth, respectively, have in the opinion of the judge greatly influenced success.

CHAPTER V

INFLUENCE OF THE COLLEGE COURSE UPON THE VOCATIONS OF COLLEGE GRADUATES

In 1910, Frederick P. Keppel,¹ then dean of Columbia College, undertook an investigation to discover what influence the college course exerted on the choice of the life careers of its students. His subjects included the members of the classes of 1908, 1909 and 1910 of Columbia and Dartmouth Colleges. To these men he sent a questionnaire containing the following questions:

Have you come to a fairly definite decision as to what your life work is to be?
Nature of work?
Was the decision reached before entering college?
If after entering, was it in the freshman, sophomore, junior, or senior year, or after graduation?
If you can conveniently do so, state in a few words the reason for your decision.
If you have changed one fairly definite plan for another, kindly indicate the time of change and the reason for it.

Of the 800 men addressed, 519 or nearly 65 per cent replied. The addresses of those who failed to reply were checked up roughly. As to the reliability of the conclusions drawn from the group replying, Keppel says, "The number who are apparently in University professional schools or in teaching positions make it clear that we may safely draw our conclusions as to the general conditions from the replies that have been received, provided we remember that the proportion of men still in doubt as to their future work is naturally greater in the case of men who did not reply than in that of those who did."

He found that all but 26 of the men who replied had come to some decision as to their life work. As to the time of choosing, he found that of the 493 who had made up their minds, 216 had reached their decision before entering college, 43 had chosen after graduation, 208 had decided during the college course, and 32 failed to specify the time of choosing. The decisions during the college course were distributed as follows: freshman year, 20; sophomore year, 38; junior year, 87; senior year, 63. Thirty-two men did not indicate the year in which their decision was reached. The junior year appears to be the critical time of decision for those who choose their vocation during the college course. Keppel thinks this may be explained by the fact that a student's twenty-first birthday is more likely than not to fall in his junior year.

¹ "Occupations of College Graduates as Influenced by the College Course," *Educational Review*, Dec. 1910.

The second question considered was, what were the reasons which determined the plans of these five hundred young men as to what they would do with their lives, and in particular, just what did their college experience have to do with the decision? A number of those replying gave no reason for their decisions and some gave more than one reason. In checking up the answers the investigator apportioned these pro rata so that the answers represent not only whole votes but one-half and one-third votes.

Keppel says that more than half the reasons offered were not very illuminating, as might be expected from the form of the question put. The reasons offered may be summarized as follows:

Work likely to be congenial.....	84
Best fitted for this work.....	57
Path of least resistance.....	23
Opportunity for service.....	35
Career offering wide opportunities.....	24
Chance for outdoor life.....	16
Liked sample got in summer.....	19
Opening up of specific opportunity.....	27
Example of parents or other relatives.....	52
Financial reward, immediate or prospective.....	23

In the great majority of cases the college was not mentioned as a factor in the choice, and several men specifically stated that their college career had had nothing to do with their plans for the future. Keppel thinks that the college may take some credit for the group who offered as a reason for choice, "opportunity for service" or "career with wide opportunities." The references to undergraduate activities were scattering, but the investigator says that there were enough of them to offer one more argument for paying attention to these activities as an integral part of the educational equipment of the college.

Eighty-seven men, or 16 per cent of those replying, changed their plans during the college course. Specific reasons for the change were given in 70 cases, but only 30 of these made any mention of the college career. Five changes were due indirectly to college influence. For example, one man decided to enter the ministry as the result of a visit to Northfield, another decided to become a lawyer instead of a doctor because of success in college debating. Still another gave up his plans to be a teacher because college instructors impressed him as being singularly remote from the affairs of real life. Sixteen of the men changed their plans because they disliked the samples they got in college of the work required in their chosen callings. Only twenty-five changed because of the direct influence of some college subject.

Keppel concludes that a large proportion of boys have decided upon a vocation before entering college and that college officials are not using this fact as they might to focus the student's interest in the subjects which form the broad foundation for his work or those which lead directly to it. In the case of those students who have not decided upon a life career before entering college, the college is missing its opportunity to stimulate and guide them in this important choice.

Keppel's study covers men who at the time of the investigation had just graduated from college, or had been out from one to two years only. It does not reckon, therefore, with the instability of "choice" based upon chance factors, which are likely to cause changes in occupation one, two, three, five or ten years after graduation. The writer of this monograph made a study similar in certain features to that of Keppel, but based upon the records of men and women who had been out of college for twelve and a half years—presumably long enough to have found their vocational level. The specific questions investigated were:

1. When did these men and women choose their occupations?
2. What reasons determined their initial occupations?
3. What proportion have remained in the initial occupation entered upon graduation and what proportion have changed their occupations?
4. How are these changes distributed among the larger occupational groups?
5. What reasons are assigned for change of occupation?

TIME OF CHOOSING OCCUPATIONS BY COLLEGE STUDENTS

The first question considered in studying the influence of the college upon the determination of its students' life careers, was the time when students choose their vocations. If the vocation is chosen before entering college, manifestly the college has had nothing to do with the decision. If the choice is made during the college course, it is more probable, though by no means certain, that the college has contributed to the decision. If it is made after graduation it is probable that the college has not influenced the decision in any large measure.

Among the questions sent to the members of the class of 1903 in the cooperating colleges, were the following:

- Did you choose a vocation before entering college?
- During the college course?
- After graduation?
- Was this chosen vocation your present one? If not, what was it?

To these questions 260 men and 136 women responded. Their answers are summarized in Table XXXIV and grouped according to occupations. The comparison between results for different occupations is one of the interesting features which Table XXXIV offers.

TABLE XXXIV
PERCENTAGES OF COLLEGE GRADUATES WHO CHOSE THEIR OCCUPATIONS
AT SPECIFIED TIMES, DISTRIBUTED ACCORDING TO OCCUPATIONS

Final Occupation	Number of Individuals	Percentage Choosing Vocation			
		Before Entering	During Course	After Graduation	Before Entering and After Graduation
WOMEN					
Teaching	96	51	25	24	75
Business	16	37	13	50	87
Other Occupations	24	42	33	25	67
Totals	136	48	25	27	75
MEN					
Teaching	64	45	36	19	64
Business	65	23	29	48	71
Law	34	65	23	12	77
Medicine	33	61	39	0	61
Engineering	25	44	36	20	64
Ministry	13	77	23	0	77
Other Occupations	26	35	38	27	62
Totals	260	44	33	23	67

It should be remembered that the 136 women included in this group represent a sampling of those who have remained unmarried and are engaged in gainful occupations twelve and one-half years after graduation. About 50 per cent of the women graduates of the class of 1903 are married, and many of these women were, before marriage employed in gainful occupations. It is not possible to say whether or not the relative proportions for different times of choosing would be affected had we the data necessary for including the women who have been withdrawn from paid occupation through marriage.

Table XXXIV shows that of these 136 women engaged in gainful occupations twelve and one-half years after graduation, 48 per cent chose their occupations before entering college, 27 per cent chose their occupations after graduation, and only 25 per cent during the college course. A considerably larger proportion of teachers than of business women chose their occupations before entering college. Of the business group 50 per cent decided on their occupations after graduation. The other occupational groups are represented by too few individuals to be considered separately.

The table shows that 44 per cent of the 260 men who answered this question chose their occupation before entering college. This is about the same proportion as found by Keppel. Twenty-three per cent made

their decision after graduation—a considerably larger proportion than Keppel's corresponding group. His group, however, was composed of very recent graduates, and, as he suggests, probably does not include a large number of those men who had not yet come to a decision. Thirty-three per cent chose their vocation during their college course—a somewhat smaller proportion than Keppel found.

Analysis of the table by occupations indicates important variations as to time of choosing the vocation. Law, medicine and the ministry show the highest percentages of choice before entering college. Teaching stands next, but well below the other three. Business shows the lowest percentage of choice before entering college. In percentage of decisions after graduation, business holds the highest rank, engineering and teaching standing second. The ministers and doctors had all made their decisions before graduation. About equal percentages of the doctors, teachers and engineers chose their vocations during their college course, the doctors having a slightly larger percentage than the other two occupations. Business stands next, followed by law and the ministry. On the whole, the variations in percentages among the different occupations are not so striking for the men who chose their vocations during their college course as for those who chose before entering or after graduation. In no occupation does the percentage choosing during college rise above 39 per cent.

In general, the facts revealed in this study agree fairly closely with the facts reported by Keppel. Both studies show that so far as the time of choosing the occupation may be used as a criterion, the college has, in these cases at least, exerted no influence upon a very large percentage of its graduates.

REASONS ASSIGNED BY COLLEGE GRADUATES FOR ENTERING THEIR INITIAL OCCUPATIONS

Taken alone, the time of choosing the occupation does not tell us conclusively what part the college has played in the graduate's decision as to his life work. The choices made during college may or may not have been influenced by the student's college course. In an attempt to discover what reasons actually determined the student's choice of a career, the following question was included in the question blank sent to the members of the class of 1903 of eleven colleges:

"Upon graduation from college what determined your first occupation? Indicate by checking or by adding to the appended list:

Chance to earn for further study.

Vocation of my choice.

Best thing that offered.

Experimenting—had made no choice."

Replies to the question were received from 251 men and 140 women. Their answers are summarized in Table XXXV.

TABLE XXXV
REASONS ASSIGNED FOR ENTERING INITIAL OCCUPATION

Initial Occupation	Number of Cases	Percentage of Times Given Reasons Were Assigned				
		I Chance to Earn for Study	II Vocation of Choice	III Best Thing that Offered	IV Experimenting. No Choice	V Influence of Parents or Friends
WOMEN						
Teaching -----	113	1	61	20	7	7
Other Occupations ---	27	0	70	17	2	11
Totals -----	140	1	65	20	6	8
MEN						
Teaching -----	68	15	59	17	9	-----
Business -----	68	11	18	57	12	3
Law -----	28	-----	93	7	-----	-----
Medicine -----	28	-----	100	-----	-----	-----
Engineering -----	19	-----	74	26	-----	-----
Ministry -----	13	-----	92	-----	-----	8
Other Occupations ---	27	6	63	19	9	4
Totals -----	251	8	59	25	7	2

In reading Table XXXV for women it should be recalled that this group represents only about one half of those whose initial occupation was teaching. The other half, having married, were not included in this study which deals only with paid occupations. For the women who were in gainful occupations at the end of twelve and a half years, the table shows that a little less than 1 per cent entered their first occupation as a chance to earn for further study. "Choice" was assigned in 65 per cent of the cases; "best thing that offered" or "experimenting—had made no choice," in 26 per cent of the cases; "influence of parents or friends" in 8 per cent of the cases. Teaching is the only specific occupational group whose size is large enough to offer a suggestion as to the trend of factors influencing choice. The reasons assigned to the various factors by the teaching group do not vary markedly from those assigned by the group as a whole.

Examination of the table for men shows that 8 per cent went into their first occupation as a means of earning for further study; 59 per cent gave "choice" as the reason for entering their initial occupation, 25 per cent took the best thing that offered, 7 per cent were experimenting, 2 per cent were determined in their selection by the influence of parents or friends.

Analysis of the table on the basis of initial occupation reveals some interesting variations. "Chance to earn for further study" was assigned by 15 per cent of the men who entered teaching, and by 11 per cent of the men who entered business as their first occupation. "Choice" was assigned by 59 per cent of the men whose initial occupation was teaching, by only 18 per cent of the men whose initial occupation was business, by more than 90 per cent of the men whose initial occupation was law, medicine or the ministry, and by 74 per cent of those whose initial occupation was engineering. "Best thing that offered" and "Experimenting—had made no choice," taken together were assigned by 26 per cent of the men with teaching as an initial occupation, by 69 per cent of those with business as an initial occupation, by 7 per cent of those who entered law, and by 26 per cent of those who entered engineering as their first occupation. "Influence of parents or friends" was not included in the checking list of reasons printed in the questionnaire. This reason was specified, however, by a few of the men with business or the ministry as an initial occupation. This reason doubtless played a part in the decisions of some of those who kept strictly to the checking list.

Variations in the percentages for law, medicine, and the ministry are not large in amount, and since the percentages are based on small numbers of cases for these occupations, the variations may be without significance. Considering all occupations comparatively, however, there is a marked tendency for "choice" to predominate as a reason for entering, as the initial occupation, vocations which require extended preparation beyond graduation, such as medicine, law, the ministry, and to a lesser degree, engineering. This result is, of course, to be expected. Teaching and business, the latter in particular, show much larger percentages drifting into "the best thing that offered," or "experimenting," having made no choice. This tendency of college graduates to drift into teaching and business because they have made no real decisions as to their life work at the time of graduation, is familiar to college officials who have been concerned with the vocational placement of students about to graduate.

Of the reasons for entering the initial occupations here listed, the college could, at best, claim credit only for "Choice" and possibly for "Chance to earn for further study," which implies a deferred but chosen vocational goal. Elimination of these two reasons leaves a little more than one-third of the cases for both men and women determined by chance opportunity, pure drifting, experimentation in the absence of choice, or in a few cases, influence of parents or friends.

But the case for college influence is not so good as these proportions might indicate. In the first place there is no assurance that the college can take credit for any large proportion of these "choices." This fact is clear from Keppel's study, which showed that of the men who decided on a life career during college, or who changed their plans for a life career during college, the great majority either did not mention the college or actually stated that their college career had nothing to do with their decisions.

The present study only indirectly throws further light on this specific question. Here and there a graduate explains more definitely why he chose a given occupation or why he changed his original decision during his college course.¹ Sometimes inference as to the reason for the choice or change is fairly safe from the answers to several questions taken together. There is too little uniformity in these chance comments to give them statistical worth, but as one reads of the decision during college to give up a tentative choice of law for business because, "I needed to get money quickly to get married," and coupled with this, "Went into business on graduation with a friend made in college"; or in connection with choice of business during college a statement that, "My father owns the business and wanted my brother or me to continue same when he no longer could," etc., one gradually gets a cumulative impression that a fair proportion of the changes or choices during college had causes other than the college curriculum. Extra-curricular activities evidently played some part in choices and changes. Change to social service work in certain cases was rather evidently based on student Y. M. C. A. activity. In one case a man went into the journalistic field as a result of experience in handling the class book during his senior year.

Only two men specifically mention the influence of teachers as a reason for choosing or changing the vocational plan. One, a chemist, says, "The personal popularity of a professor at college was at least a strong factor in inducing me to take up chemistry. Hence I went to Tech for further study." The other, a teacher, states that his change of vocational decision from law to teaching during his senior year was in part due to the influence of the college president and two college teachers. In the majority of cases there is no certain means of knowing from the statements made whether or not, or how much, the choice or change was influenced by the college career.

¹ In reply to the question, "Was this chosen vocation your present one? If not, what was it?"

Another observation seems to limit further the scope of influence which we might reasonably ascribe to the college administration for the vocational decisions of those who list "choice" as the reason for entering the initial vocation. Study of the table showing the occupational distribution of different times of choosing occupation (page 56), indicates that those occupations which furnish the largest percentages of individuals offering "choice" as the reason for their initial occupation, namely, law, medicine and the ministry, are just the occupations which furnish the largest percentages of men who chose their careers *before* entering college.

Again, it is questionable whether we should credit the college with any large share in the vocational goals of the men who entered their first occupation as a chance to earn for further study and who therefore presumably had a vocational goal. Their initial occupations were usually teaching or business. In a later section it will be shown that most of these men eventually went into law, medicine, the ministry or engineering—again representing fields in which a large proportion of the men had chosen their careers before entering college.

The results of this study of the reasons which influenced the initial occupations of the class of 1903 in eleven colleges support Keppel's conclusions that the college is not meeting its responsibility and opportunity in guiding the students in making one of the most important decisions of life.

FREQUENCY OF CHANGE IN THE OCCUPATIONS OF COLLEGE GRADUATES

It was shown in the last section that 40 per cent of the college men and 35 per cent of the college women considered in this study entered upon their initial occupations for reasons other than "choice." If in addition to this fact one reflects that "choice" may mean anything from a reasoned decision based upon known facts as to one's own abilities and the demands and opportunities of a given life career, to such vague leanings as, "Had for many years wished to be a nurse," "Decided when a small child to be a teacher," "Had always planned to be a teacher," "Father had taught," "Decided to be a teacher the first day I went to school,"¹ there will be little surprise if it be found that there is a considerable percentage of college graduates who do not remain in the initial occupation which they enter upon graduation. Just how

¹ Sample quotations from questionnaires giving "Choice" as the reason for changing initial occupation.

much change does occur and how it is distributed among different vocations is the subject of this section.

The data used in investigating the frequency of change in the occupations of college graduates were: (1) the initial and final¹ occupations of the 1092 living academic graduates (men) of the classes of 1897 to 1902, inclusive, of Bowdoin College, Colgate and Brown Universities, and the 818 graduates (women) of the classes of 1898 to 1901 of Mt. Holyoke College, and 1898 to 1900 of Smith College; (2) the initial and final occupations of those academic graduates of the class of 1903 (men and women) in the cooperating colleges listed in Chapter III for whom the essential data were available. The occupational records for the first group were tabulated from the latest alumni catalogues of the colleges studied. The occupational records of the second group were tabulated from the questionnaires returned by about 60 per cent of the men and women of the class of 1903 in the cooperating colleges, supplemented in some cases by the alumni records.

The 1092 men included in the first group had been out of college for periods of from 10 to 17 years, an average of 13.5 years, the latest bulletins having been issued for Bowdoin in 1912, for Colgate in 1913, and for Brown in 1914. The first figures reported are for these 1092 men.

The procedure used was as follows: From the alumni catalogues the initial or first occupation entered after graduation was recorded for each man. In a parallel column the final occupation of each of these individuals was entered. The individuals were tabulated in groups according to initial occupation, all those whose initial occupation was business being tabulated in one group, those whose initial occupation was teaching in another group, and so on. Later these same individuals were retabulated according to final occupations. From these two sets of tabulations the percentages of constancy and change in occupation were calculated. In Table XXXVI, which presents these percentages, only those occupational groups are recorded which include 90 or more cases. There are five such groups: teaching, business, law, medicine, and the ministry. Table XXXVI also shows the percentage of men engaged in each of these occupations at the end of the 10-17 year period who had begun their vocational careers in a different occupation.

Summarizing the facts of Table XXXVI, it will be seen that for the men included in this study, teaching easily leads all other fields as an

¹ Throughout this chapter "final" will be used to designate the occupation recorded as "present occupation" in the latest obtainable record.

TABLE XXXVI

DISTRIBUTION OF COLLEGE MEN ACCORDING TO INITIAL AND FINAL OCCUPATION (10-17 YEARS AFTER GRADUATION). PER CENT OF CONSTANCY, CHANGE AND GAIN FROM OTHER OCCUPATIONS, VOCATIONALLY DISTRIBUTED

Occupation	No. in Occupation		Per Cent with Same Initial and Final Occupation	Per Cent with Different Initial and Final Occupation	Per Cent of Final Group Recruited from Other Occupations
	Initial	Final			
Teaching.....	343	224	60.6	39.4	7.7
Business.....	283	304	87.3	12.7	18.7
Law.....	156	205	96.8	3.2	26.3
Medicine.....	98	113	96.9	3.1	13.3
Ministry.....	93	91	91.4	8.6	6.6
Totals.....	973	937	80.7	19.3	16.1

entering occupation. It is at the same time a temporary occupation for college graduates to a higher degree than any other, since nearly 40 per cent of the men who enter it upon graduation leave it for other work within a 10-17 year period. Forty-four per cent of these men who left teaching used the profession as a stepping-stone to other professions, while about 32 per cent went into business. Teaching not only loses a large percentage of its entrants, but it has small drawing power for men who begin in other occupations. Only about 8 per cent of the men who are teachers at the end of the 10-17 year period were recruited from other occupations, and of these about 60 per cent began in business. Nevertheless, despite the large percentage of loss and the small percentage of gain, teaching takes second place as an occupation for this group of college men at the end of the 10-17 year period.

Whether, and how much, teaching as a profession suffers from the presence of such a large number of vocational transients, is a question worthy of consideration. It could only be answered by a study of the comparative teaching success of those who entered the vocation as a temporary occupation and those who expect to make it a life work. The latter group is far from homogeneous. It includes men of little initiative, who simply followed the line of least resistance into the occupation whose doors open most readily to the college graduate, men who have tried unsuccessfully business or some other field, as well as gifted men whose interest in teaching was strong enough to offset the temptation to larger monetary rewards offered by other fields. Until teaching as a profession can be made more attractive financially to able men, it may be that as a nation we shall profit by having gifted college graduates give two, three or four years of service en route to their final vocations. Some of these men for one reason or another will turn aside

from their original goals and remain teachers, to the very great gain of the profession.

Business stands second as an initial occupation for this group of college men. It lost 12 per cent of the initial entrants, a higher percentage than that sustained by any other occupation except teaching, whose percentage of loss is three times as great. Nearly one-half of the men who dropped out of business became lawyers. Rather more than half of them became teachers. But the relatively high percentage of loss of its initial entrants which business sustained is more than counterbalanced by its gains from other fields. Of the men whose final occupation is business, eighteen and three-fourths per cent began their careers in other occupations. This surplus of gains over losses is sufficient to place business in the first rank as a final occupation for college men.

Law, medicine, and the ministry stand numerically third, fourth, and fifth in the order named, in both the initial and the final groupings. Law, while showing a very small percentage of loss, 3.2 per cent, from its initial group, has taken in the final group, first place in the percentage recruited from other occupations, having gained 26 per cent of its numbers, mainly from teaching and business. Medicine shows about the same small percentage of loss from its initial group, 3.1 per cent, and also shows a high percentage of gain from other occupations, 13.2 per cent, mainly from teaching and business. The ministry is not only lowest numerically in the list of occupations for college graduates, but its drawing power as a final occupation is even lower than that of teaching—6.6 per cent. At the same time, it stands third in rate of loss of its initial entrants.

The second table for men (Table XXXVII) was based upon data as to initial and final occupations drawn from the questionnaires returned by men of the class of 1903 in Bowdoin College, Brown University, Dartmouth College, Johns Hopkins University, the University of Illinois, the University of Missouri and Oberlin College. The treatment of data was the same as that used for the group reported in Table XXXVI.

The relative order of professional groups, as indicated in Table XXXVII, shows no marked differences from that shown in Table XXXVI, which presents the same facts for a different group of college men, except that the ministry is displaced by engineering for fifth place in the list. Business shares with teaching the first place as an initial occupation, however, instead of taking second place, and medicine shares third place with law. These latter differences may be due to the fact that Table XXXVII was tabulated from the records of those men who replied to the

TABLE XXXVII

DISTRIBUTION OF COLLEGE MEN REPLYING TO QUESTIONNAIRE, ACCORDING TO INITIAL AND FINAL OCCUPATION (12½ YEARS AFTER GRADUATION). PER CENT OF CONSTANCY, CHANGE AND GAIN FROM OTHER OCCUPATIONS VOCATIONALLY DISTRIBUTED

Occupation	No. in Occupation		Per Cent with Same Initial and Final Occupation	Per Cent with Different Initial and Final Occupation	Per Cent of Final Group Recruited from Other Occupations
	Initial	Final			
Teaching.....	69	65	81.1	18.9	13.8
Business.....	69	68	79.7	20.3	19.1
Law.....	28	36	92.9	7.1	27.7
Medicine.....	28	31	100	0	9.7
Engineering.....	20	20	95	5	5
Ministry.....	13	13	100	0	0
Other Occupations ¹	30	24	83.3	16.7	16.6
Totals.....	257		84.4	15.6	15.6

¹ Journalism (8), chemistry (5), research (4), forestry (4), social service and religious work (2), farming (2), librarian (2), government service (2), architecture (1).

² It should be noted that this is the final distribution of those replying to the questionnaire. The final distribution of the entire group is given in Chapter III, Table XV.

questionnaire, while Table XXXVI was based upon the alumni catalogue records of all men in the classes studied. Reference to Table XV, Chapter III, will recall the fact that different vocations furnished different percentages of replies to the occupational questionnaire as follows: Teaching 76.5 per cent, business 46.4 per cent, law 54.7 per cent, medicine 59.3 per cent, engineering 65.4 per cent, ministry 61.9 per cent. If in connection with these percentages of replies we take the percentages of change among those who did reply and the totals of the final occupational groups as given in Table XV, Chapter III, the question is left indeterminate as to whether there are marked differences between business and teaching as initial occupations, since each has a high percentage of change.

Since, however, law and medicine show relatively small percentages of change, and since law shows larger absolute numbers in the final group than does medicine (66 as against 54), it is fairly safe to infer that in this group of college men, as in the first group studied, law would take third place as an initial occupation. Reference to the same data for the ministry and engineering lead to the inference that for this group of college men, engineering would retain its lead over the ministry if the facts as to initial occupations were available for all the men of the class of 1903 in the cooperating colleges.

This table shows the same relative positions for the different voca-

tions as final occupations for college men as did Table XXXVI, with the exception that engineering has displaced the ministry for fifth place just as it did in the initial occupational distribution. The absolute numbers in these vocations at the end of twelve years (Table XV) are as follows: Business 149; teaching 83; law 66; medicine 54; engineering 39; ministry 21.

As to the relative amounts of change in different occupational groups as indicated in Table XXXVII, the order is as follows: Business 20.3 per cent; teaching 18.9 per cent; law 7.1 per cent; engineering 5 per cent; medicine and the ministry 0 per cent. The only difference between Table XXXVI and Table XXXVII as to relative positions in per cent of change, is the reversal of teaching and business for first place. Whether or not this difference is due to the differences in percentages replying in these two occupations, we have no way of discovering.

In order of percentages recruited from other occupations, few differences are noted between Table XXXVII and Table XXXVI. In both tables law stands easily first, and business second in drawing power. In Table XXXVII teaching and medicine reverse the places held in Table XXXVI, teaching here taking third instead of fourth place in drawing power. In both tables the ministry stands at the end of the list in this respect.

This measurement of change in the occupations of two groups of college graduates yields results for the two groups which are in essential agreement. While the actual percentages of loss and of gain in different occupations do not agree closely for the two groups in every case, the relative ranks of the occupations (1) as initial occupations for college graduates, (2) as final occupations, (3) as to amount of change from initial to final occupations, and (4) as to gains from other occupations, remain practically the same.

The study of frequency of change in occupation for college women covers two groups of graduates. The first includes the 818 living graduates of the classes of 1898 to 1901, inclusive, of Mt. Holyoke College and the classes of 1898 to 1900, inclusive, of Smith College. The data for this group were tabulated from the latest alumni catalogs—1910 for Smith and 1911 for Mt. Holyoke. The final record, therefore, covers a period of from 10-13 years from the time of graduation. The second group comprises the women of the class of 1903 in the cooperating colleges. Table XXXVIII gives the essential facts for the first group of 818 women.

TABLE XXXVIII

DISTRIBUTION OF COLLEGE WOMEN ACCORDING TO INITIAL AND FINAL OCCUPATION (10-13 YEARS AFTER GRADUATION). PER CENT OF CONSTANCY, CHANGE AND GAIN FROM OTHER OCCUPATIONS, VOCATIONALLY DISTRIBUTED

Occupation	No. in Occupation		Per Cent with Same Initial and Final Occupation	Per Cent of Change to			Total Change	Per Cent Recruited from other Occupations
	Initial	Final		Other Gainful Occupations	Marriage	No Rec. Occ.		
Teaching.....	448	209	45.8	5.4	39	9.3	54.2	1.9
Business.....	17	18	47	11.8	35.3	5.9	53	55.5
Soc. and Relig.	14	14	35.7	14.3	42.9	7.1	64.3	64.3
Librarian.....	18	11	44.4	5.6	44.4	5.6	55.6	36.3
Other Gainful Occupations.....	26	23	61.5	15.4	23.1	0	38.5	21.7
Total Gainful Occupations	523	275	48	6	38	8	52	12
Marriage.....	188	389	48	-----	-----	-----	-----	52
No Recorded Occupation.....	107	152	-----	-----	-----	-----	-----	-----

Analysis of Table XXXVIII shows that 523 or a little more than 64 per cent of these women entered some gainful occupation after graduation; 188 or about 23 per cent married without engaging in any gainful occupation; 107 or about 13 per cent had neither married nor engaged in gainful occupation at the end of the 10-13 year period. Of the gainful occupations teaching is by far the largest group, including 448 women or nearly 86 per cent of all those engaged in gainful occupations.

Of the 523 women who entered gainful occupations after graduation, 48 per cent were engaged in the same occupation and 52 per cent had changed at the end of the 10-13 year period. Of the 52 per cent who had changed, 38 per cent had married, 8 per cent had no recorded occupation, and 6 per cent were engaged in other gainful occupations. If we use as a base the 322 women who were not married during the period studied, the change to other gainful occupations is 10 per cent. As to variations among different occupations with reference to amount of change, there is nothing worthy of note. Teaching is the only occupational group large enough to offer significant percentages and these percentages differ little if any from the percentages for the entire group.

At the end of the 10-13 year period 389, or about 48 per cent, of these women were married, 152, or about 18 per cent, were neither married nor engaged in gainful occupations, and 277 (including 2 students who presumably would return to gainful occupation), or about 34 per cent, were engaged in paid occupations. Of this working group 209 or 76 per cent were teaching. Of these, 98 per cent had begun as teachers and 2 per cent had been recruited from other occupations. The percentages for other occupational groups are based upon so much smaller numbers of cases that they have little value as bases of comparison. Taken at their face value, however, they indicate that teaching loses less to other occupations and gains less than does any other occupation.

Table XXXIX presents for the second group studied the facts as to initial and final occupations, constancy and change in occupation. The data were tabulated from the occupational questionnaires returned by the women of the class of 1903 of Barnard, Mt. Holyoke, Goucher, and Oberlin Colleges, the University of Illinois and the University of Missouri.

TABLE XXXIX

DISTRIBUTION OF COLLEGE WOMEN (MEMBERS OF THE CLASS OF 1903 FOR WHOM THE NECESSARY DATA WERE AVAILABLE), ACCORDING TO INITIAL AND FINAL OCCUPATIONS. PER CENT OF CONSTANCY, CHANGE AND GAIN FROM OTHER OCCUPATIONS

Occupation	No. in Occupation		Per Cent with Same Initial and Final Occupation	Per Cent of Change			Per Cent Recruited from Other Occupations
	Initial	Final		Other Gainful Occ.	Marriage	Total Change	
Teaching.....	223	99	42	10	48	58	5
Other Gainful Occupations.....	39	42	48	18	33	52	57
Total Gainful Occupations.....	262	141	43	11	46	57	20
Married.....	64	184	34	-----	-----	-----	66
No Recorded Occupations.....	44	59	-----	-----	-----	-----	-----

Table XXXIX shows the same general characteristics for this group of women as were revealed by the study of the first group. About 70 per cent entered some gainful occupation upon graduation, 85 per cent of this number becoming teachers. A little more than 17 per cent married, without entering gainful occupations and 12 per cent had neither married nor engaged in gainful occupations after graduation.

At the end of the period studied, 48 per cent were married, a little less than 37 per cent were engaged in paid occupations (about 71 per cent of these were teachers) and about 15 per cent were neither married nor engaged in paid occupations. Of the initial group 57 per cent changed their occupations, 46 per cent for marriage and 11 per cent for other gainful occupations. Teaching is by far the largest of the vocational groups both as an initial and as a final occupation. Its loss to other occupations is about twice its gain from other occupational fields.

This study of change in the occupations of college graduates, men and women, takes account only of initial and final occupations. A complete record would take account of all changes between graduation and the date of investigation. It was not possible to base the measurement upon such a record because of the incompleteness of the available data. Where complete records for individual groups are available they suggest that the amount of occupational turnover is far greater than our figures show. Not infrequently there are one, two, and occasionally three or more changes intervening between the initial and final occupations. The measurement we have used, records for the individual one change only. In other cases experimentation has occurred which is not registered at all in our tabulations, because the individual's groping for vocational equilibrium finally led back to the initial occupation. The following instances will illustrate this group of cases: (1) Business one year, teacher seven years, business; (2) teacher one year, business two years, teacher; (3) teacher two years, farmer four years, teacher; (4) business one year, law five years, business.

It would be a difficult task to measure the extent to which these changes in occupation have affected or will affect the success of the individuals concerned. Undoubtedly the individuals who have not changed their occupations do not represent a homogeneous group. Some of them entered the occupation because of reasoned choice. Some drifted in, found the work congenial and stayed, some drifted in because of chance circumstances and had not push enough to get out when they found the occupation unsuited to them or were financially unable to start in a new field. The group which has changed is not more homogenous. Changes are few or many, have taken place all

the way from one year to twelve years after graduation, and represent all degrees of relationship and lack of relationship to the preceding occupations. It is probably safe to assume that so much vocational drifting must represent an unwarranted waste of human energy and social effectiveness.

REASONS FOR CHANGE IN THE OCCUPATIONS OF COLLEGE GRADUATES

As a basis for determining the reasons for change in the occupations of college graduates, the following question was included in the occupational questionnaire sent to the graduates of the class of 1903:

"If your present occupation is different from your initial occupation, indicate by checking or by adding to the appended list the reasons for the change:

Better salary

More congenial occupation

Vocation of earlier choice

Better adapted to my abilities

TABLE XL
FREQUENCY OF REASONS FOR LEAVING INITIAL OCCUPATION

Reasons Assigned for Change from Initial Occupation	Teaching	Business	Law	Medicine	Engineering	Ministry	Other Occupations	Total Frequency
MEN								
Better Salary.....	5	3	2		1		7	18
Vocation of Earlier Choice.....	6	7						13
More Congenial Occupation.....	4	8					4	16
Better Adapted to Abilities.....	5	3					1	9
Chance.....	1							1
Better Opportunity.....		1						1
Total	21	22	2		1		12	58
WOMEN								
Better Salary.....	2						3	5
Vocation of Earlier Choice.....	1						1	1
More Congenial Occupation.....	11						2	13
Better Adapted to Abilities.....	8						2	10
Other Reasons.....	11						3	14
Totals.....	33						11	43

In answer to this question some individuals checked one reason while some checked two or more reasons for their change in occupation. In order to simplify the following tables which summarize the tabulation of these answers, each vote is counted as one whether it was combined with other reasons or not. Table XL is based on a classification according to initial occupations of the individuals responding and shows the reasons which led these graduates to leave certain occupations.

The reasons which operated most frequently to induce change in occupation are, for men: better financial returns, more congenial occupation, entrance upon vocation of earlier choice and occupation better adapted to the individual's abilities, in the order named. Analysis by occupations shows that those who left teaching were influenced by these factors in almost equal amounts. Those leaving teaching who were influenced largely by the financial factor are distributed as to final occupation among the various professions and business. Most of those whose change was determined by earlier choice left teaching for law or medicine. Those who sought more congenial work or work better adapted to their abilities are scattered among different occupations. Those who left business did so chiefly for vocations of earlier choice and for more congenial occupation. Financial considerations played a lesser part, and were usually only one of several reasons assigned. Those who left business for vocations of earlier choice went mainly into law or medicine. About half of those who were seeking more congenial occupations went into teaching, the remainder being scattered among different occupations.

The chief reasons responsible for change in occupation among women graduates are the desire for more congenial work or for an occupation better adapted to the individual's abilities. Need to be at home is another large factor in the case of women and constitutes a major part of the causes of change listed under "other reasons." "Vocation of earlier choice" seems a negligible factor in producing change in women's occupations. This is consistent with the fact shown in Table XXXV, page 58, that few women entered their initial occupation as a chance to earn for further study.

The number of cases upon which this study of reasons for change in occupation is based is too small to merit its presentation except for consideration in connection with the study of reasons for choice and the measurement of change. No conclusions will be drawn from it except in connection with these studies.

CHAPTER VI

OTHER FACTORS HAVING A POSSIBLE BEARING UPON SUCCESS IN COLLEGE AND SUCCESS IN VOCATION

The fact that a student is self-supporting wholly or in part during his college course may have some bearing upon his record both in scholarship and in the extra-curricular life of the school. It may also indicate qualities which have a measurable relation to vocational success. The amount and kind of professional training after graduation may be related in a measurable degree to later vocational achievement. Early marriage and children may have something to do with success, either as a spur to greater effort, or as a hindrance to further study.

Data with respect to these matters were secured on the occupational questionnaire for men, and on self-support and study after graduation for women. It was found impossible, however, to isolate the separate factors to be studied and retain groups large enough to justify any sort of suggestion as to trends in relation to vocational efficiency, for in this matter as well as in the other problems considered in this study inspection of the tabulations showed the necessity of distributing the data according to occupations. The attempt to measure such relationships, even crudely, was therefore abandoned. However, certain facts of interest are brought out by the tabulations and some of these facts will be presented briefly in this chapter.

SELF-SUPPORT IN COLLEGE

The data for determining the amount and kind of self-support in college were obtained in reply to the following questions included in the occupational questionnaire.

If wholly or partially self-supporting during your college course, what was the gross amount earned during the four years?

What part of this was earned while college was in session (i. e., exclusive of summer vacations)?

How was it earned?

Table XLI summarizes the replies of 203 men and 117 women now engaged in paid occupations. It shows that of the 203 men reporting two-thirds were wholly or partly self-supporting, earning a median amount

TABLE XLI
SELF-SUPPORT OF COLLEGE STUDENTS DISTRIBUTED ON THE BASIS OF OCCUPATIONS
1½ YEARS AFTER GRADUATION

Occupation	Total Reporting	Not Self-Supporting	Wholly or Partially Self-Supporting	Approximate Amounts Earned During Course						Kind of Work				
				Amount not Specified	\$50.-\$99.	\$400.-\$599.	\$600.-\$999.	\$1000 or over	Median Amount Earned	Unskilled Manual	Skilled Manual	Unskilled Intellectual	Skilled Intellectual	Business
MEN														
Teaching	60	11	49	6	8	8	9	18	\$700	34	4	6	26	13
Business	54	28	26	5	3	3	7	8	\$800	23	4	4	9	11
Law	31	16	15	2	5	2	3	3	\$375	13	3	3	10	5
Medicine	29	8	21	3	3	4	3	8	\$950	13	2	2	10	13
Engineering	16	2	14	1	2	4	4	3	\$600	14	1	1	11	7
Ministry	13	2	11	1	1	1	2	6	\$1100	5	2	1	7	3
Total	203	67	136	18	22	22	28	46	\$700	102	15	13	73	52
WOMEN														
Teaching	92	73	19	5	8	3	3	---	\$300	10	4	7	16	1
Business	8	5	3	---	---	---	2	1	\$900	4	---	---	---	1
Social and Religious Work	10	8	2	1	---	---	1	---	---	---	---	1	1	1
Librarians	7	7	---	---	---	---	---	---	---	---	---	---	---	---
Total	117	93	24	6	8	3	6	1	---	14	4	8	17	3

of approximately \$700. There are marked differences among the different vocations as to the proportions of men who were partially or wholly self-supporting during college. Teaching and the ministry lead the list with 82 per cent and 85 per cent respectively. The small number of ministers reporting makes the exact percentage for this group somewhat unreliable. Medicine with 72 per cent comes next, then engineering with 69 per cent. Somewhat less than half of the business men and lawyers were self-supporting. If we contrast business with its high percentage of non-self-supporting men and its low scholastic distribution, with teaching which has a low percentage of non-self-support and high scholastic range, there is a suggestion that probably the matter of self-support does not play so large a part in scholarship as do some other factors.

Of the 117 women reporting, only 20 per cent were partially or wholly self-supporting. The median amount earned was approximately \$300. The groups other than teaching are represented by too few cases to serve as the basis of comparisons.

The kinds of work were classified somewhat arbitrarily under the heads: unskilled manual, skilled manual, unskilled intellectual, skilled intellectual, and business. The most frequent type by far is unskilled manual. A better idea of the ways in which these students earned their way can be gained by a more detailed analysis of the methods of earning. It should be noted that the same student frequently reported different types of work.

Unskilled manual (men) included: waiter and kitchen work, janitor, caretaker about house and lawn, night watchman, farm labor, caring for sick, sawing wood, driving milk wagon, coachman, stable work, bell boy, brickyard work, miscellaneous jobs. Skilled manual: print shop work, painting, barber shop, tailor shop, athletic coach, brakeman, reading gas meters, shoemaker, machine shop, photographic work, gymnasium assistant, jewelry shop. Skilled intellectual: teaching and tutoring, library work, clerical, surveying, editorial work, orchestra, choir, teaching music, pharmacist, laboratory assistant, bookkeeper, reporter, engineering, surveying, weather bureau, preaching, chaplain, editor of college paper. Business: clerk, canvassing, bill collecting, bank clerk, college supply store, salesman, running a boarding house, club steward, collecting rents, book agent, life insurance, handling ads., laundry agency, store delivery, managing the college paper.

The women who earned by unskilled manual labor served as mothers' helpers, maids, waiters; cared for sick; served at teas; did cooking, sewing, laundering, cleaning, kitchen work; waited on table; did miscellaneous jobs; and one was an artist's model. Skilled manual for women included: remodeling hats, typewriting and massage. Some of the activities listed under unskilled manual may easily belong under skilled manual. It is difficult to draw the line in many cases. Unskilled intellectual occupations included: library work, sorting papers, reading to people, clerical work. Skilled intellectual for women included: tutoring and other teaching, laboratory assistant, playground work. Business included: magazine subscriptions, catering, clerk in store.

SPECIAL STUDY OR TRAINING AFTER GRADUATION

To what extent is the education offered by the liberal arts college supplemented by later training for the vocations its graduates enter? What and how long is this training and to what extent does its amount

differ for different occupations? In attempting to answer these questions, the following queries were included in the occupational questionnaire:

What special study or training for your vocation have you had since graduation from college?

In the following table, indicate the *amount* and the *dates* of such training.

All of time for _____ years.

One half time for _____ years.

One quarter time for _____ years.

TABLE XLII
NUMBER OF YEARS OF SPECIAL STUDY FOR VOCATION AFTER GRADUATION
FROM COLLEGE

Occupation	Years and Part Years of Graduate Study											Number Reporting
	None	Unknown	$\frac{1}{2}$ to $\frac{1}{2}$	$\frac{1}{2}$ to $1\frac{1}{2}$	$1\frac{1}{2}$ to $2\frac{1}{2}$	$2\frac{1}{2}$ to $3\frac{1}{2}$	$3\frac{1}{2}$ to $4\frac{1}{2}$	$4\frac{1}{2}$ to $5\frac{1}{2}$	$5\frac{1}{2}$ to 6	Over 6	Median	
MEN												
Teaching ¹	10		8	15	12	10	6	3	2		1½	66
Business.....	39	5	1	2	4						0	51
Law.....	4			2	3	21	4				3	34
Medicine.....		3	1		2			9	7	4	5	26
Engineering.....	8	2	1	3	2	1					0	17
Ministry.....			3				6	2			3	11
Totals.....	61	10	14	22	21	34	16	12	11	4	1½	205
WOMEN												
Teaching.....	15	1	23	27	14	8	2	1			1	91
Business.....	4		2		2							8
Social and Religious.....		2	5		2	2						11
Librarian.....	1			3								4
Totals.....	20	3	30	30	18	10	2	1	0	0	1	114

¹Unlike preparation for law and medicine, this graduate study does not necessarily or usually precede the entrance upon professional work.

Some of the replies were difficult to tabulate because of the irregularity of the training. For example, one man, a lawyer, checked all of the time for four years and one quarter of the time for five years. Opposite the first statement he records, "college, worked my way," and opposite the second, "studying law and working." His first occupational record is, "Physical director 1903-10." Another records, "Two fifty-minute periods (4.50-6.30 P.M.) six days a week for three full scholastic years." For teachers, summer sessions or summers abroad are not infrequently

reported. These irregular records have been equated as well as possible in terms of years and parts of years. Table XLII summarizes the reports which were received. "Home reading" and "experience" have been reported in many cases, but obviously could not be included in a tabulation based on amounts of time given to special training. In the case of medicine, hospital work was included under training, while for law, experience in a law office was not so counted. This distinction is somewhat arbitrary, but is based upon the fact that the young lawyer is usually paid for such work, while the young doctor, until very recently, received no remuneration.

The kinds of training reported are as follows: Teachers: university, college, or normal school graduate work—part-time, full-time, or summers; correspondence study; research; travel (language); private lessons: conservatory of music; school of expression; business school. One woman teacher had taken nurse's training. Business: law school, medical school, engineering school, forestry, university post graduate—full-time, part-time, summer schools (one took M.A. in economics); correspondence schools; business schools. In most cases "experience" or "hard work" is the report given. "Reading—trade papers and books," is also frequently reported. The lawyers usually report law school, very often followed by office experience of from six months to two years. Occasionally the law degree is preceded by a year's study for the Master's degree. In one case the L.L.B. was followed by three years' study for the Ph.D. The four lawyers who record no graduate study, report "experience" or "constant reading and practice." It is possible that they misinterpreted the question, and reported with reference to training after graduation in law. The same may be true of the men who reported less than three years for the study of medicine. Several of the physicians report work for the M.A. degree and one for the Ph.D. In general they report the medical school plus hospital experience of from one to six years. European or other post-graduate medical work is reported in a number of cases. The engineers report technical school, university graduate study, correspondence and night school courses. Beyond that they report home study and practical experience. The ministers report work in theological schools mainly. Home reading and short courses at the university are also mentioned. The women social and religious workers report Y. W. C. A. training schools, lectures and correspondence study; business college; theological seminary; college and university graduate work; travel (language); music; and home study. The librarians studied in library schools and held apprenticeships in libraries.

YEARS BETWEEN GRADUATION AND MARRIAGE

Table XLIII shows, for the college men in the larger vocational groups, the distribution by occupations of (1) the number of years between graduation and marriage and (2) the number of children.

TABLE XLIII

YEARS BETWEEN GRADUATION AND MARRIAGE OF MEN IN DIFFERENT OCCUPATIONS. NUMBER OF CHILDREN 12½ YEARS AFTER GRADUATION

Time of Marriage	Frequency for Each Occupation					
	Teaching	Business	Law	Medicine	Engineering	Ministry
Before Graduation...	4	1	-----	-----	-----	2
Year of Graduation...	3	2	1	-----	1	1
One Year After.....	5	1	-----	-----	-----	-----
Two Years After.....	7	5	1	1	1	-----
Three Years After....	7	7	4	1	3	2
Four Years After.....	7	5	-----	-----	3	3
Five Years After.....	10	6	6	3	-----	-----
Six Years After.....	6	5	2	5	2	-----
Seven Years After....	2	9	3	1	-----	1
Eight Years After....	1	2	6	6	-----	-----
Nine Years After.....	1	4	2	-----	3	-----
Ten Years After.....	2	2	2	1	2	-----
Eleven Years After...	4	1	1	1	1	-----
Twelve Years After...	-----	1	2	-----	-----	-----
Approximate Median Years.....	4	5	7	6	5	3
Not Married.....	5	4	4	8	3	2
Number of Children						
0.....	14	5	5	2	5	-----
1.....	10	16	9	6	4	3
2.....	16	20	10	9	6	3
3.....	14	5	4	4	-----	2
4.....	5	1	1	-----	1	-----
5.....	-----	1	-----	-----	-----	-----
6.....	-----	-----	-----	-----	-----	-----
7.....	1	-----	1	-----	-----	1
Approximate Median Number of Children	2	2	2	2	1	2

CHAPTER VII

SUMMARY AND CONCLUSIONS

The more important results of this survey of the vocational distribution and income of college graduates in relation to college marks and extra-curricular activity, and of the study of choice and change in the occupation of these graduates, are summarized in this chapter, together with the conclusions which these results suggest.¹

1. The relation between college standing and income twelve and one-half years after graduation is too slight to warrant the use of marks as the chief basis for predicting the kind of success that the average employer has in mind when he consults the appointment committee in regard to its students or graduates. Marks should, however, be considered as one factor in prognosticating vocational success, since the coefficients of correlation found were positive. The relative weight to be given scholarship in predicting later achievement in any given occupation can only be determined through further investigation.

In so far as the individuals concerned in this study were really measured in scholarly ability by the tests of the college, the low correlation between marks and income probably means that the qualities which lead to vocational efficiency, as indexed by the world at large, are only in part, in smaller part than we had believed was true, the qualities measured by success in the college curriculum. It may well be true, however, that another cause of the low correlation is the fact now being fairly faced by progressive college teachers and administrators, that the college has failed in very large measure to relate its curriculum so directly to the student's life interests as to convince him of its worth. If able students consider other activities more worthy of effort than their studies, their marks will fail to measure anything, so far as these students are concerned, except the valuation placed upon the studies. To the extent that this cause contributes to the low correlation—and the degree to which it contributes can only be a matter of conjecture—the result is an indictment of the vague, unanalyzed "culture" aim of the college and of the "general training" methods of instruction based upon the old faculty psychology.

¹The results summarized in this chapter differ in reliability, as the writer has taken pains to point out in earlier chapters. At this point the reader is reminded of this fact, but to avoid verbosity statements in regard to reliability are, in the main, omitted from the summary.

2. The relation between extra-curricular activity and income is somewhat closer than that between scholarship and income. This emphasizes the necessity of faculty and administrative recognition of student life as a selective agency of even greater importance than the curriculum so far as the qualities that make for future vocational success are concerned. Administrative officers, therefore, should give serious attention to the problem of measuring and recording these non-academic achievements. Vocational counselors, student advisers generally, and appointment committees should make careful study of these records in relation to all diagnostic and placement decisions. Undoubtedly there are vocational variations as to the prognostic significance of extra-curricular activity, both as to kind and amount. This question merits further investigation.

3. The results here reported prove nothing as to the relative contributions of college studies and of extra-curricular activities to the production of vocational success, nor as to the effects of study or neglect of study upon vocational success. Rather, they serve as measures of the two sets of activities, curricular and non-curricular, as selective agents in identifying the qualities which operate in later life to produce vocational success. Until we can measure the initial traits and abilities which a student possesses when he enters college we have no certain means of measuring the degree to which either college studies or extra-curricular activities have contributed to the final product.

4. Scholarship seems to be a selective factor with reference to *vocation* to a considerably greater degree than with reference to success in a specific vocation. This fact should be given due weight in any measurement, or in the interpretation of any measurement of the relation between scholarship and later success.

5. The college plays a very small part in the vocational decisions of its graduates. The majority (at least two-thirds) choose their vocations before entering or after leaving college. The reasons for choosing and other evidence seem to justify the inference that the college has played little or no part in the decisions of many of the one-third who decided during their college course. Both the large number who have decided on vocations before entering college and those who have made no decisions before entrance, offer the college a large unutilized opportunity and a grave responsibility for service to student and to society.

6. There is a large amount of change in occupation, a part of which at least is probably indicative of waste both to the individual and to society. The change here measured takes no account of the normal

shifts within a large field of work such as business, which really comprehends a great diversity of occupations. Some of this occupational experimentation is doubtless of ultimate service to the individual and some of it is not. In this study it was not possible to isolate and measure change as a conditioning factor in vocational success. Such measurement is desirable in determining just how costly is the *laissez faire* policy which we pursue with reference to the choice of life careers. In any case the frequency of change, barring that which is accounted for by entrance upon the occupation of earlier choice, measures one, though not the only serious effect of this policy.

7. The liberal arts college sends more of its male graduates into business than into any other single occupational field. These business men as a group stand lower scholastically than their fellows who enter other fields of work. This seems to indicate that the college curriculum is ill-adapted to their abilities, or interests, or both. Either adjustments should be made in the college course to meet the needs of these men, or they should be advised to enter institutions which are better adapted to their interests and abilities.

8. One of the outstanding results of this investigation is the emphasis it throws upon variations among different occupations in practically all the factors studied, whether these factors are components of the scholastic or of the graduate careers of the subjects. The occupational variations as to (a) rank as initial and final occupations, (b) reasons for entering initial occupation, (c) time of choosing, (d) change and reasons for change, (e) income distribution, (f) scholarship distribution, (g) cooperation in research work, (h) self-support as a student, (i) amount of graduate study, (j) time between graduation and marriage, are summarized below. The data are presented for men only because of the small numbers of women in occupations other than teaching.

TEACHING

Teaching holds first place as an initial occupation for the group studied. As a vocation twelve to thirteen years after graduation it holds second place.

As to the time of decision, about 36 per cent chose their work during their college course. This is about the same proportion as for medicine and engineering and considerably larger than for law or business. That one-fifth decided after graduation is also worthy of note.

As to reasons for entering teaching as an initial occupation, 59 per

cent assigned "choice"; 26 per cent "best thing that offered" or "experimenting, having made no choice"; and 15 per cent "chance to earn for further study."

As a transient occupation it ranks far above any other calling except business. As to its rank as compared with business in this matter of change, there is some doubt. For one group studied, much the larger one, teaching has by far the highest percentage of change. For the second group, including only men who replied to the questionnaire, business has a slightly larger percentage of change, but the replies represent a smaller proportion of the whole number engaged in that occupation than is true in the case of teachers. Teaching not only loses a high percentage of its initial entrants but its gains from other fields of work are relatively small, though the magnitude of the results on this point also differs for the two groups studied.

The reasons assigned for change from teaching to other occupations are distributed fairly evenly among, (1) better salary, (2) vocation of earlier choice, (3) more congenial occupation, (4) occupation better adapted to abilities.

Comparison of income distributions places teaching lower than any of the other vocations except the ministry, whether we consider the median alone, or the median and the range of the middle 50 per cent.

As to scholarship rank, just the opposite holds true. The median rank for teaching is higher than for any other occupation, and the same comparative results are found when the percentage included in successive halves, fourths and fifths of the class are considered. These facts are corroborated by figures from other sources and give teaching easily the highest place as a scholarly profession. It also takes first place as to interest in investigation, or at least interest in this investigation since more than 76 per cent of the teachers returned replies to the occupational questionnaire.

Eighty-two per cent of these men were wholly or partially self-supporting as students—a larger proportion than for any other vocation except the ministry. The median amount of professional study after graduation was approximately $1\frac{1}{2}$ years; 15 per cent had no special preparation beyond college. The median number of years between graduation and marriage is four, one year more than for the ministry and from one to three less than for the other occupational groups.

BUSINESS

Business ranks second as an initial occupation. As a final occupation it ranks first, claiming nearly 32 per cent of the class of 1903 in

the cooperating colleges. This is almost twice as large a percentage as for teaching which ranks next.

As to time of choosing, 48 per cent report decisions after graduation—more than twice as large a proportion as for any other occupation; 23 per cent decided before entering college; and 29 per cent during college. Extra-curricular activities and summer work are occasionally mentioned in incidental comments as factors in the decisions.

The most frequent reason assigned for entering business as an initial occupation is "best thing that offered," which represents 57 per cent of the reasons assigned. Add to this the 12 per cent for "experimenting, no choice," and we have 69 per cent who were drifting. Eleven per cent entered as a chance to earn for further study. Only 18 per cent of the reasons assigned were "choice."

In the light of these facts we are prepared to find that in frequency of change business vies with, or may even surpass, teaching as a transient occupation. In drawing power as a final occupation, however, it stands second, being surpassed only by law.

The chief reasons assigned for leaving business for other occupations are "more congenial occupation" and "vocation of earlier choice." The chief reasons assigned for entering business from other occupations are "better salary" and "more congenial occupation."

The income distribution shows the median for business slightly lower than that for law and almost the same as that for medicine. Its mid-fifty per cent range, however, is somewhat better than that for law and very slightly poorer than that for medicine. Its lower range reaches as far down as that of any occupation, but its topmost range is far higher than that of any other occupation—\$5000 higher than the next highest level. In the interval—\$10,000 and above—fall 12 per cent of the business men, 6 per cent of the lawyers, 3 per cent of the doctors, and $1\frac{1}{2}$ per cent of the teachers.

As to scholarship rank, the business men as a group stand lowest, with the exception of the ministry which is represented by too few cases to serve as a reliable basis for comparison. This result is corroborated by data drawn from other sources.

Only 46.4 per cent replied to the occupational questionnaire—the smallest proportion for any occupational group. Something less than one-half were self-supporting in college. Beyond experience and home reading, 76 per cent report no special preparation after graduation from college. The median number of years between graduation and marriage is five.

LAW

Law ranks third both as an initial and as a final occupation. For some colleges it ranks second as a final occupation, displacing teaching.

Sixty-five per cent of the lawyers chose their occupation before entering college and only 12 per cent chose after graduation. As to reasons for entering law as an initial occupation "choice" was assigned in 93 per cent of the cases and "best thing that offered" in 7 per cent. Most of the men who began in this field remained. In both groups studied, the percentage of change was low—3.2 for the larger group and 7.1 for the smaller. In percentage recruited from other occupations it stands first.

"Better salary" was the reason assigned for change by those who left law. The chief reasons assigned for entering law by those who had different initial occupations were better income and vocation of earlier choice.

From an economic point of view law for college men ranks high. Its median income is higher than that of any other group, but business and medicine are somewhat better in terms of the range of the mid-fifty per cent. The upper range for business is decidedly higher than that for law.

Its scholastic position is also good. Considering all available data it would probably rank third scholastically, being outranked by teaching and perhaps engineering. Legal caution may account for the relatively low percentage (54.7) who replied to the occupational questionnaire.

As a group lawyers seem to have been relatively free from economic pressure as students. In common with business less than half of those reporting were wholly or partially self-supporting, and this in spite of the fact that after graduation they took in the main three years of professional training. This relatively large amount of professional training after graduation probably accounts for the median of seven years between graduation and marriage.

MEDICINE

Medicine ranks fourth both as an initial and as a final occupation. About 60 per cent chose before entering college and about 40 per cent during their college course. "Choice" is the reason uniformly ascribed for entering the profession, and little change is reported. This might be expected in the light of the long preparation beyond college graduation which these men undergo. The median number of years of special preparation is five. As might be expected the median number of years beyond college graduation and marriage is also high (6)

for those who were married at the end of twelve and one-half years. About 30 per cent were not married at the end of this period.

Considering median and range of middle fifty per cent the financial position of the doctors is relatively favorable. The extremes, however, place the profession as low financially as any occupation without carrying it as high within the twelve and one-half year period, as law or business.

Scholastically the doctors hold an intermediate position, being lower than teaching, law or engineering, but higher than business. A little over 59 per cent replied to the occupational questionnaire.

ENGINEERING

Engineering ranks slightly lower than the ministry in some colleges and slightly higher in others, both as an initial and as a final occupation. Forty-four per cent¹ chose this field before college entrance, 20 per cent after graduation, and 36 per cent during their college course. "Choice" is assigned as the reason for entering in 74 per cent of the cases and "best thing that offered" in the remainder. Engineering has a relatively small percentage of change and also a low percentage of gain from other fields.

Its income position is slightly better than that of teaching, but much poorer than that of medicine, law or business. Its scholastic position is second only to that of teaching. These men report a much smaller amount of special preparation beyond graduation than might be expected, being little better in this respect than business. About half report no special preparation beyond experience. The median number of years between graduation and marriage is five. These statistical facts are somewhat unreliable because of the small number of cases upon which they are based. Sixty-five per cent of the engineers sent in the occupational data requested.

THE MINISTRY

The ministry has declined from its original dominant position as an occupation for college graduates to fifth place for the country as a whole. The percentages as to choice, change, etc., are not very reliable because of the very small number of cases upon which they are based. So far as they show anything they indicate that the ministry is entered preponderantly from choice, determined in a large measure before entering college, that it suffers a relatively small amount of

¹Burritt places it lower for the country as a whole, giving it sixth place, though it is slowly increasing while the ministry has been steadily decreasing. (*Professional Distribution of College Graduates*, p. 78.)

change, and recruits relatively few men from other fields. Its financial attraction is relatively small. As to scholastic distribution this group stands low, but other available data are conflicting upon this point. It stands with law as to median number of years of study after graduation (three). The median number of years between graduation and marriage is three, less than for any other occupational group. About 62 per cent replied to the questionnaire.

9. The occupational distribution for women is not nearly so wide as that for men. Of the 37 per cent of the class of 1903 engaged in paid occupations at the end of twelve and one-half years, about seven-tenths were teachers. Considering the great variety in natural endowment it is questionable whether there is such a preponderant proportion of this group of women who are better equipped by nature for teaching than for any other field of work.

The largest single occupational group for women is constituted by those who are listed as "homemakers." About 50 per cent of the women in the classes studied are included in this group. No criteria for measuring success in this composite vocation are available. The college has recognized in practice, if not in theory, the need for some vocational preparation for teachers. Should it not also consider its responsibility with reference to the 50 per cent who will assume the vocations of child rearing, household administration, feeding and clothing a family, etc., with, in the main, no scientific preparation for a life career whose success is peculiarly bound up with both individual happiness and social well-being?

The initial occupation of the 50 per cent who later marry is also a matter of concern to the college. About two thirds of this group engage in gainful occupation for anywhere from one year to twelve years with a median of from five to seven years before marriage. The occupational distribution of the women included in this investigation is, however, of little practical service to college administrators because of the unprecedented expansion of the vocational field for women due to the War.¹

The 15 per cent neither married nor engaged in gainful occupations represent an unanalyzed group. Doubtless many of them are also engaged in some of the homemaking duties which claim the married group. We should discover, however, what their activities are if we are to know how the college has succeeded in serving and how it may better serve all of its graduates.

¹ *Bulletin of the Association of American Colleges*, IV, No. 4, p. 11.

The very complex problem created by the temporary nature of the initial occupation for about one half of the college women graduates, by the composite nature of the final occupation of this 50 per cent, by the fact that some of them continue to earn after marriage, by the fact that many of those who do not marry are limited in their vocational possibilities by home demands—all of these conditions make the responsibility of the college for vocational direction of its women students especially binding.

CHAPTER VIII

SOME PROBLEMS OF COLLEGE EDUCATION SUGGESTED BY THIS STUDY

The discussion offered in this chapter is presented, not as conclusions of this investigation, but as the author's opinions of certain desirable adjustments in the college field. It is her belief that this study offers some support to the conviction which is shared by many friends of higher education that some readjustments are urgently needed if the college is to give to American life and American youth its highest potential service.

That the college student has little respect for scholarship is generally acknowledged both within and without college halls. The result of this low estimate of scholarship undoubtedly registered as one factor in reducing the correlations between scholarship and income reported in this investigation. Until the students can be convinced that the work of the classroom is worthwhile for them, apart from the marks attained, this condition of affairs is unlikely to be changed no matter what method we adopt to exalt scholarship itself. In his report for 1914¹ President Mickeljohn of Amherst, after pointing out the fact that in Amherst and other colleges from forty to fifty per cent of the students who enter leave without graduating, expresses his belief that the fundamental reason for this state of affairs is that "many of our students are not sufficiently convinced of the value of the college studies to work at them seriously while they are with us, or to remain with us when obstacles arise or counter attractions appear Some way must be found to convince a Freshman that these four years of college life are burning with such opportunities as he never again will have, and to keep that conviction strong within him until we have done our work upon him. How can that conviction be established and maintained? I presume it will be said that, as in the case of other beliefs, the best way to ensure its acceptance is to make it true."

To the writer it seems evident that to make this conviction true will require changes both in the curriculum of the college and in the methods of instruction employed. Just what these changes should be, however, must be determined in the light of (1) a clear definition of the goal of the American college, conceived in both individual and social terms, and (2)

¹ *President's Report*, Amherst, 1914.

the facts of modern educational psychology, taking full account of the motives which control human behavior and of the laws which govern the modification of such behavior whether original or acquired.

The aim of the college is usually defined as "culture" or "liberal education." All too often these terms carry with them an academic aloofness from the practical affairs of life. It is claimed that the college should "fit men to live, not to make a living," and anything which might have vocational applicability is looked upon askance as likely to interfere with and degrade the high purpose of preparing men to live. Yet withal there has been little agreement as to just what constitutes a liberal education when we pass to the discussion of its details. With respect to this lack of unanimity of aim, Charles Francis Adams said in a Phi Beta Kappa address at Columbia University in 1906, "The authorities are as wide apart now as ever they were. There is no agreement; no united effort to a given end." President Schurman of Cornell, in his report for 1906-07, wrote, "The College is without clear cut notions of what a liberal education is and how it is to be secured . . . and the pity of it is that this is not a local or special inability but a paralysis affecting every college of arts in America."¹

To the writer a liberal education connotes an education which liberates the energies of the individual for the fullest, richest and most effective functioning in every aspect of living: in his use of leisure; in his relationships as a member of a family and of the body politic; in his occupation, through which he both earns his living and makes his contribution toward the satisfaction of human wants. This interpretation of a liberal education implies, of course, a repudiation of that attitude toward human activities which conceives of work and culture as opposite poles in life—work connoting the practical, the material, the sordid; culture being held synonymous with the refined, the uplifting, the spiritual. The conception of culture here adopted sees the habits, attitudes and knowledge which constitute culture as growing out of and reacting upon every phase of life. It does not separate a man's culture from his activities as a member of a family, as a member of the body politic, or as a producer of goods. His culture illuminates, gives meaning and significance to his life, to his work. Vocation is conceived not merely as a necessary means of winning for oneself and dependents the necessities and embellishments of life but as an activity instinct with social values through which the individual may continue his growth and realize his promise.²

¹ Quoted by Flexner in *The American College*, The Century Company, 1908.

² For a discussion of these concepts see Dewey, *Democracy and Education*, especially Chap. XXIII.

If this conception of culture and work is adopted, the college which aims to fit its students for effective functioning in the varied relations of life must accept responsibility for making a contribution to the vocational as well as to every other phase of life. Indeed, since vocation occupies so central a place in the lives of most individuals, one of the surest ways of fixing permanently those attitudes, ideas and habits which constitute culture, is to associate them with and bind them to vocation while they are being acquired. Tie up a man's philosophy, his psychology, his sociology, his history, his religion, his economics, his ethics and his politics to *work* which is bound to be a part of his life, and we are assured at least of many occasions for recall, a condition essential to their retention as possible shaping influences in the absorbing life beyond the college walls. But let these subjects be acquired as something apart from and superior to the practical affairs of life and they will be put aside with the cap and gown, neatly laid away, as it were, in a dust and mothproof box, safe from the contaminating influences of the utilitarian world.

From the standpoint of acquisition as well as from that of retention there is a distinct advantage to gain through making vocation one of the organizing centers of college studies. The acquisition and modification of habits, ideas, attitudes and skills which constitute education, proceed most effectively when energy is released and effort induced in response to urges or drives from within. For the youth of college age the vocational motive constitutes such a drive which it is highly wasteful to ignore even if guidance with reference to vocation itself were not the goal.

The belief that the vocational aspect of life should be given a definite and important place among the objectives of the liberal arts college does not imply necessarily that the college is responsible for the development of specialized vocational knowledge and skills. Such training is the specific function of the technical and professional schools. This belief does imply, however, that the college has a large responsibility for leading the student to realize the important part that vocation will play in his life, for helping him to choose his vocation wisely, for bringing him to appreciate the necessity of a broad, yet none the less specifically determined foundation for this work and perhaps for specialized training after graduation. Finally, since the college has a social as well as an individual goal, it is responsible for helping the student to see the social significance of the various fields of work and the social responsibility which each entails upon the men and women who choose it.

This social goal of the college is bound up, indeed, with its individual goal. Through neglect of the former it must inevitably fall short of

the latter. The institution may send forth its graduates equipped with noble ideals and purposes, but the functioning of these purposes, the opportunity to live nobly and fully will be largely conditioned by the social environment which provides or withholds the stimuli for those responses toward which the college has bent its highest effort. If the growth and development which the college has striven to foster in the undergraduate are to continue along the same basic lines after graduation, if the old ideals and purposes are not to be abandoned as unworkable and unproductive, the social environment must become more truly adjusted to human needs and human aspirations. If the college is to be a dynamic force in reorganizing this social milieu which conditions the final effectiveness of its product, it must send forth men and women who carry into their work not merely the technical skill which the professional schools may supply as an aid to personal advancement, but a realization of the critical social problems of the time which are so largely economic in their origin, an appreciation of the relation which the work of each bears to these problems, and a desire to really do something toward their solution.

The tragedy of the age is the dearth of enlightened, effective leadership in the hour of the world's greatest need and richest opportunity. The need is for men and women who have not only a social purpose, a social vision and the personal qualities which make men willing to follow their leadership. These qualifications are essential. But to make such leadership issue in productive social change instead of being dissipated in will o' the wisp strivings for phantom Utopias, it must be enlightened by knowledge of social origins, social changes, the original nature of man and the laws by which original nature may be effectively modified. In no field more than in business is such enlightened leadership needed, for the crux of the social unrest lies in the maladjustment of capital and labor. The American college sends to-day 30 per cent of its male graduates into business. To train leaders has always been a prominent aim of the liberal arts college. To realize the type of leadership demanded by the present and the immediate future, is the first requisite for meeting this responsibility. But if the college is to make such training effective, it must abandon its faith in formal discipline, and educate the college youth specifically for the kind of social functioning it expects of him.

The vocational phase of the writer's interpretation of a liberal education has been stressed here, not because it is the singly important aspect of the graduate's life, but because it has been so largely ignored or repudiated in the past. The writer is convinced that for the student

vocation is a highly effective motive and a vital organizing centre for study, and that for the graduate it constitutes one, perhaps the most important organizing center of his life, with intimate interrelations with practically all other phases of his activity. At the same time his attitude toward vocation, and his effective, enlightened functioning in vocation is of basal significance to social welfare.

A growing appreciation of the necessity for courses more clearly related to the life needs of students, is evidenced by the introduction of courses in contemporary social problems which a number of colleges are now offering for Freshmen. Columbia prescribes such a course, called Introduction to Contemporary Civilization, which is a direct descendant of the War Issues Course of the S.A.T.C. Dartmouth¹ gives a course called Problems of Citizenship, prescribed for Freshmen. The college announcement says, "The purpose of this course is to open the minds of men at a very early stage of their college course to intelligent consideration of the great problems of life which lie about them and with which they must be prepared to cope, as individuals, as members of society, as citizens of the United States of America." President Meiklejohn of Amherst announced in his report for 1914 a course on Social and Economic Institutions as a new elective for freshmen.

There are hopeful signs that the need for better teaching in the college is being increasingly appreciated. In addition to numerous articles in educational and semi-popular magazines voicing this need, a book dealing with teaching methods in college has recently appeared;² Yale College has appointed a Dean of Freshmen to administer the new plan of a joint freshman year, which plan carries with it a chance for promotion to men who have the "instinct for classroom teaching";³ and most interesting of all, the Faculty of the School of Agriculture of Pennsylvania State College recently undertook a serious study of methods of teaching under the instruction of Professor Kilpatrick, of Teachers College, Columbia University.

A tendency to assume some responsibility for vocational guidance has been developing rapidly in the last five years, more extensively in the women's colleges than in the men's colleges. These guidance activities have frequently had their beginnings in placement or appointment committees, which have gradually extended their function to include the providing of vocational information and often more or less thorough individual diagnostic work. Sometimes, however, the initiative has

¹ *Dartmouth College Catalogue*, 1920-21, p. 64.

² Klapper: *College Teaching*.

³ *President's Report*, Yale University, 1920.

been taken by the dean, student advisers or other interested members of the faculty. These attempts to help students to find themselves vocationally have usually got under way with no attempt to square the developing practice with existing theory as to the purpose of the liberal arts college.

The proportions that vocational activities are assuming in the colleges was emphasized by the conference in New York on February 23 and 24, 1921, of the deans of women and secretaries of appointment committees in colleges having women students, who met to exchange experiences and ideas on the subject. Fifty-six men and women representing forty-four colleges and vocational bureaus were present. Barnard and Smith reported appointment bureaus operated separately from the dean's office, which furnished vocational information and advice in addition to carrying on the work of placement.¹ Smith has also a system of vocational talks to sophomores and seniors and an annual vocational conference. Vassar reported an occupational bureau under the department of wardens (heads of halls), a faculty vocational committee with one member from each department to whom students might be sent for advice; preparation by this committee and the vocational bureau of a vocational bulletin; an alumnae committee on social work which will gather information as to opportunities in this field from groups of alumnae all over the country; plans for the formation of similar committees for other fields of work; vocational conferences; articles in the college paper; provision of books on vocations, and a personnel research bureau under the direction of the department of psychology. Holyoke, Northwestern, Pennsylvania State, Ohio State and the Women's College of Delaware reported the work carried on through the dean's office. Holyoke and Wellesley have as a visiting adviser, Miss Jackson of the Women's Educational and Industrial Union of Boston. Her work is the giving of information rather than advice. She has weekly or bi-weekly conferences at Wellesley and monthly meetings at Holyoke. Goucher has a resident vocational adviser who is also associate professor of economics and sociology.

Pennsylvania State College has a student vocational committee which is valuable in arousing interest. They study books and pamphlets under the guidance of the dean, take the census of vocational interests, answer questions of students and take charge of bulletin boards. Mills College reported a course on vocational opportunities. Miss Hirth, of

¹ It is interesting to note that both of these colleges have recently reported a very decided swing away from teaching and toward other types of work on the part of their graduates.

the Bureau of Vocational Information, reported that a movement had been inaugurated for a system of occupational bureaus for men with a clearing house in New York for the colleges in that section of the country.

Leland Stanford Junior University has a very active faculty committee on vocational guidance. Each member of the committee is assigned a group of vocations, for knowledge of which he is made responsible. This committee supplements the work of the departments and provides especially for students who have not selected a vocation. It issued in June, 1919, a very helpful bulletin of vocational information dealing with seventeen major fields of work, with suggestions in regard to each as to the nature of the work, personal qualifications demanded, financial considerations and other rewards, opportunities for promotion, entering the profession, cost of training, most helpful courses, etc.¹

Dartmouth just a year ago established the office of associate dean with the purpose of eliminating, or at least reducing materially, the post-graduate period of business floundering which many college graduates must undergo before they settle down to their life work.²

Brown University has a committee on educational advice and direction.³ This committee will make careful study of individual students as a basis for educational and vocational guidance. The head of the psychology department is its chairman.

At Cornell,⁴ the university adviser for women has for a number of years been carrying on rather extensive work in vocational guidance, including personal conference, courses by non-resident lecturers, books on vocations, and cooperating alumni clubs.

Alfred College has a vocational committee of the faculty under the auspices of the Twentieth Century Alumni of the College, one member of which is usually the head of the department of education. Personal advice, lectures by alumni and other outside speakers, vocational chats in the college paper, and books are the chief modes of guidance.

If these changes and others which are taking place in the college are to be rationally evaluated and developed along intelligent lines, they should be unified and related within a well thought out college policy based upon clearly envisaged goals. Such terms as "liberal education," "general culture," are too vague to serve as the basis for scientific determination of policies, selection of subject matter, or evaluation of method.

¹ *Vocational Information Bulletin*, No. 22, June 1919, Leland Stanford Junior University, California.

² "Vocational Guidance at Dartmouth College," *School and Society*, April 3, 1920.

³ *Report of President of Brown University*, 1919.

⁴ *Report of President of Cornell University*, 1910.

They must be replaced by specific objectives in terms of habits: mental, emotional, and physical; attitudes; ideals and appreciations; knowledge, both for understanding and control; skills; psychological products to be established in the nervous systems of individuals, each by the application of appropriate psychological methods.

Just what these specific goals ought to be in order to contribute in greatest measure to individual and social well being can only be determined in the light of facts. These basal facts are to be found first in an analysis of social needs, and second, in an analysis of the activities of college graduates in their everyday life. One very large group of such activities centres in vocation, which indeed is so intimately related to those centering in family life, civic functioning and recreation that it may, in fact, be considered a conditioning factor in most of the others.

The survey which formed the basis of this study could not, in the nature of the case, be comprehensive enough to furnish sufficiently exact data to serve as a guide in determining college objectives as they relate to the vocations of college graduates. It suggests, however, some of the possibilities of such a survey which might well be undertaken on a larger scale by the cooperative efforts of the colleges themselves.

Assuming, in the light of practices already developing, that the college will eventually assume conscious responsibility for some vocational direction of its students, what administrative provisions can be suggested which may most effectively aid the student in finding himself vocationally? The writer believes that an orienting course for freshmen, which will have as its prime object the arousal of definite life purposes, not merely with reference to vocation but with reference to other aspects of life as well, might profitably be the initial college approach. Vocation, through such a course, would be interpreted to the student in terms of its social significance and in its intimate interrelations with other activities which will constitute his life, rather than as an isolated process having only to do with earning a living. So interpreted, the student will be better able to appreciate the motives other than financial which should enter into his choice of a life work. He should realize that "To find out what one is fitted to do and to secure an opportunity to do it is the key to happiness. Nothing is more tragic than failure to discover one's true business in life or to find that one has drifted or been forced by circumstances into an uncongenial calling. A right occupation means that the aptitudes of a person are in adequate play, working with the maximum of satisfaction."¹ Both from the standpoint of individual happiness and of effective social functioning the college may

¹Dewey, *Democracy and Education*, page 360.

worthily aim to develop something of the attitude toward vocation which is conveyed by Van Dyke's poem "Work."

Let me but do my work from day to day,
In field or forest, at the desk or loom,
In roaring market-place or tranquil room;
Let me but find it in my heart to say,
When vagrant wishes beckon me astray,
"This is my work; my blessing, not my doom;
Of all who live, I am the one by whom
This work can best be done in the right way."
Then shall I see it not too great, nor small,
To suit my spirit and to prove my powers;
Then shall I cheerful greet the labouring hours,
And cheerful turn, when the long shadows fall
At eventide, to play and love and rest,
Because I know for me my work is best.

The approach, then, to vocational guidance would be through educational guidance. This orienting course would naturally carry with its arousal of purposes, direction as to means of carrying them to fulfillment by helping the student to appreciate the contributions of the different studies of the curriculum as well as the potential training value of the non-academic activities of the college. If the student's purposes and the purposes of the college could be brought into harmony, the energy necessary for effective work would be released. But it is essential that the student see the relation of college requirements to ends which he holds valuable. Vocation will be one of these ends but by no means the only one.

In helping the student to appreciate the relation of the various studies to his life purposes, the cooperation of the different departments should be enlisted. Through short units, perhaps, they may give the student some understanding of the contributions made by each field of study not as a "discipline" but as a means of understanding, enjoying, controlling activity and environment. This relating must, to be effective, necessarily be in terms of the student's experience and ability to see the relationships in question. One phase might well be a suggestion of the different fields of work into which a given study or group of studies may lead, or for which it forms a valuable background, or even a foundation stone.

Such a course would, needless to say, require vital teaching in the college courses which followed it. To whet a student's appetite and then send him away disappointed and disillusioned would be serious. But it may well be that if students were made conscious of what they had a right to expect, and really demanded satisfaction of felt needs instead of passively accepting as much of what is handed to them as is

necessary to make a gentleman's grade, we should have a surer guarantee of more vital college teaching than even the much needed supervision of college teaching could secure.

So far as the vocational aspect of this course is concerned it should lead to a student demand for two things. First, it should create a demand for help in personal analysis to discover aptitudes, strength and weakness, to serve as a guide in choosing and eliminating certain fields of work, and also as a guide for personal, self-directed effort toward improvement along needed lines, using the facilities which the college provides through its general life, its curriculum, and its faculty.

The second demand created should be for specific, accurate and detailed information in regard to vocations suitable for college graduates. This information should include the remuneration which these fields offer, not only initially but their ultimate possibilities, the rate at which one may expect advancement, the returns other than financial, opportunity for service, leisure, study, etc., the amount and kind of further preparation necessary, where this preparation may be secured and its approximate cost, the qualities essential to success, including the general intelligence level of the men in any field with whom an individual would have to compete, the college courses which would be directly helpful vocationally, serviceable as preparatory or as background courses for the specialized training to follow.

The diagnostic work should be carried forward as scientifically as present knowledge will permit. Something in the nature of a personnel bureau such as Vassar is developing would serve not merely to bring together data from all available sources as to the students' traits: mental, physical and social, but would constitute the occasion for devising better methods of rating on qualities other than the purely scholarly, and stimulate the attempt to develop vocational tests applicable to college graduates. The only such test which we now have is the intelligence test. Intelligence tests should be given to college students and follow-up records should be kept to show the degree to which the scores achieved correlate with success in various callings. Such a bureau would constitute the research or student survey department of the college, serving it in many other ways beside that of diagnosis in connection with vocational guidance.

The informational phase of the work may well be carried on in a variety of ways. A course of lectures and conferences given by members of the faculty and successful men and women in the various fields, books, and where possible some actual trying out of tentative choices during the summer vacation would be helpful. Whether the work was under

the direction of the dean, a faculty committee, or a resident adviser would depend somewhat upon the facilities of the college. Some one person, a very well trained person, would be directly responsible for the direction and coordination of the work, but he should have the assistance of a great many people, each responsible in detail for some part small enough to enable him to know and keep up to date with reference to it. In particular each teacher should be expected to know intimately the chief fields of productive work into which his subjects lead. This type of responsibility would be one of the best stimuli to the kind of contacts which will keep the teacher alive and growing.

In conclusion, the writer believes that if the American college is to fulfill its high calling of preparing men and women to live, it must recognize the necessity of redefining its objectives in terms of the actual needs of society and of its graduates who must live and work in that society. It must reorganize its curriculum in the light of these well thought out and scientifically determined and analytic aims. It must enlist the energies of the student to utilize to the limit of his capacity the facilities which it offers, by arousing his purposes and making them one with the purposes of the college for him. It must develop through investigation the knowledge which he needs to direct his purposes intelligently toward fulfillment. It must recognize and apply the principles of modern educational psychology in the teaching through which it strives to bring about the knowledge, the habits, the skills, the ideals and the appreciations which constitute its goals.

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Yale	1920		

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